

DEALS  
FOR  
READERS

# COMMODORE User

Incorporating Vic Computing

Volume 1 Issue 10

July 1984 UK Price 85p

## Tanner tells all

## Two printers: Juki vs MPS-801

## Butterfield on garbage



Reviews: Calc Result, Video Pak / Word, Vizaspell

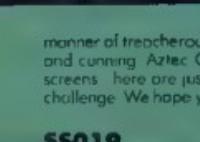
# DON'T JUST SIT THERE - PLAY SOMETHING!

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Forbidden Forest is more of a quest than just a game! The action takes place in a four dimensional scrolling forest landscape which many have entered, but none has returned. Yes, I did say FOUR dimensional - day fades into night as the action unfolds! The quest is to seek out and destroy the Demogorgon, mystic ruler of the Forbidden Forest. Before you can even set eyes on him you will have to contend with his army of fearsome creatures, including mutant spiders, showers of giant frogs, snakes, dragons, skeleton soldiers and more! You have only your trusty bow and arrows to defend on!



SS018



SS019

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SS020

## SLINKY

Slinky, the spring, was having fun hopping about when suddenly he came upon a pile of coloured blocks, so he thought he'd play around on them for a while. Much to his amazement he found that they changed colour when he landed on them. Wow! But unknown to him, the blocks belonged to the Wicked Wizard, who sent his friends along to tease our poor hero. Slinky is a real fun package with ninety-nine levels, amazing reward displays, and action replays. Where else could you meet such charming characters as Dusty the dust cloud, Marge the magnet, Ralph the random raindrop, and Lorenzo the chameleon hopper?



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MILITAC 3 100.00 - Very good fit version of above  
CALI. RESULT ADVANCER 108.500-109.500 - ~~Spec~~  
CALI. RESULT TEST 109.500 - Single stage serials  
TESTAFC 105.000 - Standard Test fixture  
MULTIPLEX 107.000 - Multi stage serials but cheap  
MULTEPLAC 105.000 - Surpassing fixtures 96  
HORN ALC 105.000 - Standard fixture approached  
PARISI 106.00 (v105.00) - Good sales history  
HORN/EMERSON 106.00 (v105.00) - 99.00-101.00 - as above

## Wordprocessing

Personal Finance

## Utilities

Business & Finance

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### Computer use

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programmes. The second part covers assembly  
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This is a great way to learn assembly language.  
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This is a great way to learn assembly language.

Languages

## Databases

□ 2000年版

[1 AUGUST 1910 - NIGHT-Flight during World War, Germany] The first night flight in Europe was made by the German aviator, Gustav and Captain Leo Borchardt, in his biplane, "Red Devil," at 11:15 P.M. on August 1, 1910. Gustav Borchardt, 25 years old, flying under Robert Esders, Captain of the German Flying Corps, started from the airfield at Cunnersdorff, situated about 15 kilometers northeast of Dresden, at 10:30 P.M., and landed at 11:15 P.M. at the same place, having covered a distance of 15 kilometers. The first night flight in America was made by the German aviator, Gustav Krupp, on August 1, 1910, at 10:30 P.M. at the airfield at Waukegan, Illinois, having covered a distance of 15 kilometers. The first night flight in France was made by Lieutenant Georges Guynemer, of the French Flying Corps, on August 1, 1910, at 10:30 P.M. at the airfield at Chalons-en-Champagne, having covered a distance of 15 kilometers. The first night flight in Italy was made by the Italian aviator, Giosuè Giannini, on August 1, 1910, at 10:30 P.M. at the airfield at Foggia, having covered a distance of 15 kilometers. The first night flight in Russia was made by the Russian aviator, V. I. Petrichuk, on August 1, 1910, at 10:30 P.M. at the airfield at Orenburg, having covered a distance of 15 kilometers. The first night flight in Spain was made by the Spanish aviator, Juan de la Cierva, on August 1, 1910, at 10:30 P.M. at the airfield at Madrid, having covered a distance of 15 kilometers. The first night flight in Portugal was made by the Portuguese aviator, Dr. António da Cunha, on August 1, 1910, at 10:30 P.M. at the airfield at Lisbon, having covered a distance of 15 kilometers. The first night flight in the British Isles was made by the English aviator, Captain H. G. Hawker, on August 1, 1910, at 10:30 P.M. at the airfield at Brooklands, Surrey, having covered a distance of 15 kilometers. The first night flight in Australia was made by the Australian aviator, Captain J. G. L. T. M. Smith, on August 1, 1910, at 10:30 P.M. at the airfield at Woomera, South Australia, having covered a distance of 15 kilometers. The first night flight in New Zealand was made by the New Zealand aviator, Captain W. E. G. Morgan, on August 1, 1910, at 10:30 P.M. at the airfield at Wigram, Canterbury, New Zealand, having covered a distance of 15 kilometers.

84 min

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Publisher's guarantee: There are no newsletters in this magazine except one.

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## News

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### Sleeker printing from Commodore: the MPS-801 reviewed

Commodore has at last discontinued its functional but out-dated 1815 and 1925 dot matrix printers in favour of the MP-801 - speedier and sleeker, and no more expensive. See Rydin look at this beast and decide out whether this 30 cps screamer is really worth paying £230 for -



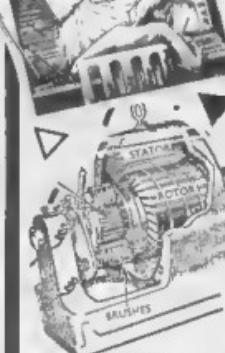
### Tommy's Tips: your queries answered

No rest for Tommy - whatever it's queries on the Vic or the 64, our resident boffin answers them all. This issue: memory, Vic vs 64, and more

25

### Kids and Commodore computers: a bundle of books

Kids are pretty inquisitive about computers and won't be naturally playing games with them. So it may be an idea to acquire one of the many books now available on simple programming and other computer activities. We collected a small pile for a couple of professional inquirers to browse through.



### Butterfield on Garbage: Gorboge collection on Commodore computers - part 1

If your programs start running slowly and erratically or maybe even stop for no good reason you can see, your computer is probably filling up with garbage. In this first article of a two-part series, Jim explains what "garbage" actually is and how it's collected. Next month, more garbage

31

### Tranner tells all: Making It with Precision

We've all dreamt of making money with our macros, transforming our dabblings in programming into business tycoons! Simon Tranner has done just that. Programming for Precision, he's notched up his with SuperSpell, SuperSpell and the new SuperOffice. We find out how three years have transformed an amateur programmer



### Screen scene for Vic: games reviewed

34

### Vic Victuors: the pick of readers' programs

Show your helicoper through a cavern, avoiding asteroids and pass the flying test by the rocket - that's Copter It for the Vic with ZX separation. There's a lot to key in, so get on with it!



### Scandinavian spreadsheet: CalcResult and Easy CalcResult reviewed

CalcResult from Swedish software house Bladec has already achieved acclaim as a sophisticated 3D spreadsheet, giving the \$4 big business facilities at low cost. The cut-down Easy version is now available on cartridge for the home and small business user. Ken Rydin puts them both through their paces

53

### Daisy, daisy: the Juki 6100 reviewed

At around £400 the Juki 6100 has to be one of the cheapest daisy-wheel printers around for any computer - including the Vic or 64 (via a suitable interface, of course). Does a bargain-basement price mean a crummy spec? No, for it's packed with features usually found only on pricier models. Fred Read takes an enthusiastic look at this lesser-quality machine

## Deals for Readers: our mail order catalogue



Getting bigger each issue, offering you better value on the best products.



### Spelling it all out:

#### Vizaspell reviewed

Wrong words is only half the problem - you've got to get them right as well. In February we looked at the accomplished Vizaspell word processing package for the 64. It's now spawned Vizaspell II, a spelling checker that should correct your spelling mistakes and typing errors. Chris Durham (not a bad speller) checks out that package and finds out if it represents value for money.

### 80-column word processing:

#### Videopak 80 and Ward reviewed

True word processing aficionados spurn the 64 because it produces only 40 characters of text across the screen. The Videopak 80 cartridge from Impact Designs doubles that width and throws in a word processing and spreadsheet package for good measure. Still bright-eyed and bushy-tailed midway through his all the word processors we can find marathon, Chris Durham moves up to the big screen to check out this pricey package.



### 64 screen scene: games reviewed

#### Unicopy:

#### single-disk copying by Butterfield

Jan's all purpose disk copier is neat, clever, and works too



### Albert's Assessment Aid: instant personal budgeting

Want to know how much money you'll have by stopping smoking, paying off the Hoover straight away or getting rid of the goldfish? You'll need Albert's aide program to help you make the necessary calculations.

### A page far Forth: one book, one tape



Richard Hunt takes a critical look at PIC-Forth, the latest implementation of the language from Romic. For bed-time reading material (dedicated may be) he's browsed through an introductory book on the subject from the prolific Owen Bishop.



### Opening up the Magic Desk: Commodore's new word-processor- plus-promises package

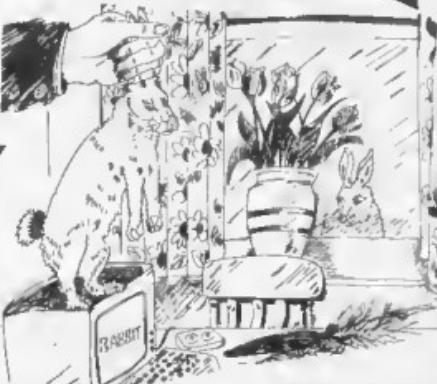
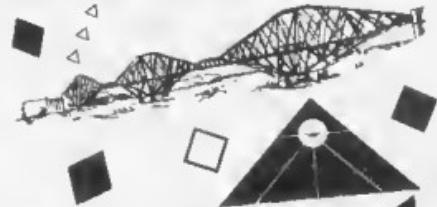
You pick your options by pointing a cursor at pictures of what you want to do but sadly there isn't very much you can do with Magic Desk, except some simple word processing. Albert van Aarts gives Magic Desk the treatment, en route speculating on what it's for - and who it's for.

### Now read on: Books for the 64



### Write away: your letters

We're considering renaming the Jolly Roger aper - the debate on piracy goes on. Much media bashing by software sellers, but also a collection of comments, queries, complaints, criticisms and congratulations from real Commodore users.



*News*

# Snapshots of the Show

A full report  
on the  
Commodore Show  
in London  
last month  
appears  
in our

next issue.



## The ads man cometh

Computer and computer software advertising regularly falls foul of the Advertising Standards Authority, that august body set up to ensure that we Average Users don't get conned or misled by the industry's propensity for wild claims and dubious offers.

Trouble is, such advertising (according to a recent ASA's report) is on the increase. Last year 400 complaints were made that's five per cent of all complaints the ASA received.

Although only 55 were upheld, the situation has inspired the ASA to describe some of the ads as "at best, of an ambiguous and often recklessly misleading nature; at worst, of downright deception". That applies not only to some of the larger companies (who have no excuses) but to the bright young boffins who've written some marketable software.

The problem is partly caused by the fast and furious growth in

the industry, many advertisers, whether large or small, find that their publicity generates a demand that they cannot meet quickly enough. Under the ASA's code of practice for mail-order, advertisers should not take longer than 28 days to fulfil an order. After that, the customer is entitled to an immediate refund.

Even computer geeks like Sinclair are continually caught out in this way. The latest and much-publicised complaint about the company involves the Sinclair QL which was quoted a 28-day delivery way back in January. Acquiring a machine still involves the labour of a Yukon gold prospector.

Pricing of computers is also an area much abused. Computer manufacturers (Commodore is no exception) actively discourages price cutting so many retailers resort to dubious claims to cajole you into the shop. For example, Dixons, the High Street electrical chain, was reported for claiming a saving of £150 on the Commodore 64. The machine still cost the standard £199.99 though. The reason? Dixons had based

its discount on a list price of £349.99.

Although the ASA accepts that the advertiser "is entirely responsible for contravening the Code", it throws a brickbat at the media which should ensure advertisements are not only acceptable for publication but that delivery dates can be fulfilled. In short, "Plenty of scope for improvement", chimes the ASA.

### SHORTS

#### Four for the price of one?

Bubble Bus is releasing a disk compilation of four of the company's best selling serious' programs: the WORD WIZARD word processor, LABEL PRINTER for storage, retrieval and printing of labels POSTER PRINTER (prints special large character sets for postcards etc) and ADVERTISER

which turns the 64 into a moving musical message display machine. At the low retail price of £14.95 Bubble Bus plans to enhance its image of high quality at good value for money (it says here). Can't be bad, though. The bundle is being called QUADRILLION sounds more like a musical game. Info 0732 355962.

### SHORTS

**Watch and Wait:** Severn Software reckons it has a first for 64 games - a high-speed loading method incorporating the ability to have a screen picture displayed while the program is loading. It's not quite so fast as certain other fast-load methods already on the market, reliability is "very high" to the extent that "our products will carry a fast load on both sides of the tape". Special loading effects are possible, thereby creating changing graphics and sound effects during a tape load. Severn's adventure a 70-location graphic adventure called Mystery Monroe Manor is being re-mastered to include this facility and will be released at £8.50.



# CREATIVE SPARKS strikes again on VIC 20

These six new games written in 100% pure Vic 20 machine code, not high standards of playability aren't really made the most of everything the Vic has - that's because of action and strategy, great graphics, glorious colour and full sound effects. Try Submarine Commander, Tower of Evil or Mine Madness and you'll want to try all six.

You should be able to find these games from Creative Sparks at leading retail outlets but in case of difficulty, telephone the firm below.

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**A**

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News

## SHORTS

Get out those old games: OXFAM has launched a major appeal for computer software through its shops in the London area. OXFAM, Britain's leading voluntary organization in the field of overseas aid and development, recycles all donated goods: clothes, toys, books "whatever people give us." This summer OXFAM is appealing particularly loudly for software, especially games cassette, for personal and home computers "of whatever type and for whichever make." OXFAM says it would also be grateful to any manufacturer or retailer who could sort out any items which could be spared. Take your surplus goodies into any OXFAM's shops or contact Bernie McDermott or Liz Sharman on 01-348 4225.



## SHORTS

Wedge wobble: Last month's pieces on wedges omitted the kinda vital Basic loader. The routine will appear next issue. Abject apologies.



## Portable print

The trouble with the plethora of new low-cost printers now available is that virtually none of them will plug straight into your Vic or 64. To make you even greener with envy of micro owners with sensible interfaces, Epson is launching two new thermal printers, the P-40 and P-80, costing £95 and £160 respectively. Both appear with only RS232 or Centronics interface options.

The P-40 is a portable thermal dot matrix printer small enough to fit under a briefcase. It prints a respectable 45 characters per second, has rechargeable batteries and uses thermal paper (so you don't need print ribbons). Column width is 40 characters but you can get 80 or 20 characters on a line by using the condensed or enlarged print facility. According to Epson, the P-40 should be available by August.

The more expensive P-80 won't be available until October. It is also battery operated and runs at the same speed. Unlike the P-40, it's a true 80 column model; it prints in both text and graphics mode, has a choice of Pica or Elite styles, and will accept plain paper, using its thermal transfer ribbon cartridge. Both models use only a friction feed mechanism.

To use either of these printers with the Vic or 64, Epson recommends the Centronics parallel printer interface from Impex Designs. It's a simple plug-in-and-print device which includes all Commodore Graphics. That sounds nice'n'easy. Trouble is, it's not exactly a snip at £54.95. That's the current price - Impex may well be reducing it for this year's Commodore Show. Impex is on 01-900 0999.

## SHORTS

Now read on: Super Blitz, Commodore's Vic and 64 game proves to have a rather special quality: it's helping dyslexic children to overcome their learning disability. A teacher apparently wrote to Commodore to say that Super Blitz had helped her pupils and her own severely dyslexic son to develop the correct scanning habits associated with reading. The game is a City Bomber clone, an aircraft bombing a city of skyscrapers in which King Kong is lurking. It seems the program's teaching value is in the movement of the plane across the screen as the child concentrates on following the plane from left to right moving down a space with each pass, he or she follows the correct tracking for reading and does not suffer from erratic eye motions back to the left. It's a cheap one, too - available on cassette at £4.99.

## SHORTS

Speedster Horace: Fans of that misshapen character Horace will be pleased to hear that Melbourne House has at long last issued the sequel to Hungry Horace: Horace Goes Skiing, for the Commodore 64. A sneak preview reveals it achieves little more than a combination of Frogger and Skeet, sadly.

Horace himself must be getting rather long in the tooth but at least the tape itself features 'Pavlova', a routine that speeds up tape loading times to around that of a disk, says Melbourne House. So you can have Horace frolicking around your screen from tape in less than two minutes. Melbourne House kindly explained that the program takes its name from its creator, one Andrew Pavlomanolakis. At least that sounds more imaginative than the ubiquitous 'Turbo', Amstrad's similar speed-loader.

## SHORTS

Edit Aslk: Following a stream of customer complaints we've established that the mail-order games supplier Ank Microsystems has gone bust. We weren't taking any more orders from Ank for adverts anyhow but that's cold comfort to all those people who saw their cheques cashed and no products arrive. Your chances of getting your money back? Zilch.

commodore  
COMPUTER CENTRE



Dennis Law presented the prize of a CBM 1541 disk drive to high-scoring Steve Northrop of Ilkeston, Derbyshire, for his top game playing on Gridtrap 64 from Livewire. Dennis, himself an owner of a CBM 64 system was amazed when told of Steve's top score of 866,980. The Livewire Hi-Score Competition is free to enter with each copy of Gridtrap 64 and the other Livewire games.

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The Computer Dept., 1st Floor, 343 Oxford Street (Next to Bond Street)

*News*

## Totally comprehensible

Thorn EMI has been dabbling with the home computer market to no great effect for a couple of years now. But there are new people and new ambitions at Thorn EMI. And there's a new deal with one of the more interesting US independents among Commodore-based software suppliers.

TOTL Software produces a range of low-cost database, wordprocessing and spelling-checker packages for the 64 - all of which feature a computer-carrying chicken on the box. "There is a product-specific chicken for each of the current software categories," enthuses TOTL.

Continuing this lowl theme, most of the programs come with CHICKSPEED - a facility that TOTL claims "dramatically increases speed in critical program functions" (we won't be chicking about that until our review copies arrive).

TOTL is an acronym of 'Tuna O' The Land', which, in turn, is a parody of 'Chicken O' The Sea', elucidates TOTL's blurb. Confused?

Only part of TOTL's range is now being distributed by Thorn EMI (noted for records, tapes, videos - but not for chickens). The company already produces a few tape-based games and cartridges for the Vic and 64, and has now added TOTL's more 'practical' software to its range (with more goodies to follow from various sources, we hear). Unfortunately nearly all the products available come on disk for the 64, despite the fact that TOTL's whole range of software caters for both machines. According to Henry Kitchen, Thorn EMI's sales and marketing manager, "we may introduce more of TOTL's range at a later date". Oh goody.

At present, Thorn EMI is offering TOTL's inferno, a disk-based data-management program costing £49.95. For the money you get a maximum of ten files per disk, 100 fields per record, 245 characters per field and 2,500 characters per record. Features include user-definable report formats and templates which automatically configure the software for a number of

different sorting and retrieving tasks. Reportedly it's very good.

Also for the 64 is Text, a disk-based word processing package at £44.95. We haven't yet tried it. That's complemented by a 10,000 word spelling checker, also on disk; that's being priced at £34.95 and is customised for UK rather than Americans.

The only product available for both Vic and 64 is Label. That allows you to sort and print mailing lists, catalogues and the like. It has a search and sort facility and integrates with Text for the production of form letters. Obviously the facility is less than useful to Vic owners, for whom Label comes only on tape and costs £19.95. Both tape and disk options are available for the 64, costing £19.95 and £24.95 respectively. More details on 0262 543 333.

### SHORTS

**Personable: The Computer Trade Association has voted Rod Cousins of Quicksilver Person of the Year for 1983, "primarily because of his work in promoting the UK software industry". In his capacity as Vice Chairman of the Guild of Software Houses (GOSH), the self-styled watchdog of the industry, Rod has been active throughout 1983 "in his efforts to fight tape piracy and protect consumers' interests" (it says here). He's managing director of Quicksilver, one of the leading games houses.**

### SHORTS

**Blunders in Screen Saver:** We did an injustice to Romuk's Dicky's Diamonds (five stars in the value for money rating) in our June issue. For a start we called it 'Dicky's Diamonds', and we got the price wrong - £16.99 not £19.99. Even better value

### SHORTS

**Quick isn't dead:** Quicksilver, one of Britain's major home computer software houses, has been acquired by the Argus Press Group - publisher of Computing Today (and other titles) and part of the British Electric Thetford Corporation (of course). It seems Quicksilver will reportedly continue to trade under its own name, the company says that financial expansion, forthcoming innovations and "a more intense marketing strategy" will "maintain its position" and enable it to "accelerate its activities and diversify into new technological areas".



No, it's not the Vicsoft Customer Complaints Department at work. It's a PR photo promoting a new company called Palace Software which has plans for games based on movies - like *The Evil Dead*. We've asked for a review copy...

Palace Software is a spin-off from the company that runs the Video Palace in London's Oxford Street, one of the country's biggest vendors of videos (and home computer software too). Other titles promised are jovial little numbers like *Basket Case*, *Halloween* and *Texas Chainsaw Massacre*. Rumour has it that the Editor's own favourites, a Swedish opus entitled *Clockwork Banana*, is not among the future goodies.

## Bus Shop repairs

GCS Bus Shops are the latest idea in computer repairs, and it's a simple one at that. You merely hand your computer over the counter at any Bus Shop and an engineer will identify and rectify minor faults there and then. For more complicated repairs, he'll tell you when the machine will be ready, just like going to the dry-cleaners really.

GCS Engineering is one of the country's larger maintenance organisations dealing largely with microcomputers and business micros. But its Bus Shops will give equal service to both home and business micros. So you can quite happily bring along your humble Vic, 64, Pet and any peripherals for a quick fix.

Prices are a standard £15 per hour with an extra charge for spare parts and all work is guaranteed. Paul Alexander of GCS asserts "it's company policy that machines must be fixed within 48 hours unless we have problems with spare parts". GCS buys spares direct from Commodore.

Bus Shops have already opened in Sheffield, Birmingham, Basildon, Feltham and Chester.

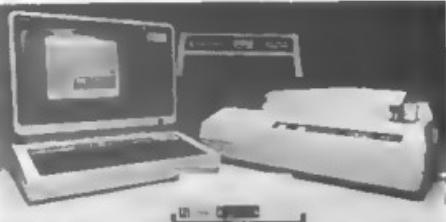


This is the off-the-shelf Data 20 parallel interface, now on offer for £149.95 from ImpeX (01-900 0529). "The easiest way to use a parallel port with a Commodore computer" says ImpeX, though it's hardly unique in this field - at \$9 under £55 it's not the cheapest either. But the Data 20 products have a good reputation, utilise high technology in the graphics (MMU), and its price allows for intelligent software development. It's programmable via cassette or ROM cartridge, has a game programmable video port, and features built-in game ROMs which render the BASIC language in standard character mode. It appears to be the systems at £149.95 previously mentioned by Commodore themselves, yet no ROM, and possibly doesn't qualify. However, ImpeX's slogan doesn't mention power from the computer, so the problem is even a commercial quantity quantity looks small, and eventually stay in use - probably just as it's programmed to load cartridges or save games.

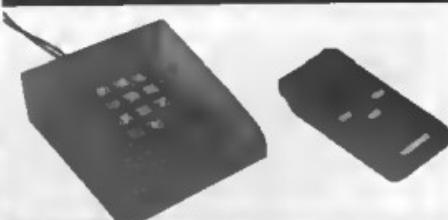
with plans for more in Birmingham, Manchester, Bristol and Andrie. The latest to open is inside the Micro Systems at Lion House store on London's Tottenham Court Road. Lion House is opening more shops in the Central London area which will also incorporate Bus Shop facilities. Looks like being a Good Thing considering that Commodore's own repairs are slightly less than speedy.

### • SPORTS •

More micros! Home computer ownership has more than doubled in Britain during the past year and the market looks set for further record growth, says a market survey published a couple of months ago - more than one home in ten had a micro-computer in January 1984, 11 per cent of households compared with 4.9 per cent in January last year. Sinclair and Commodore currently dominate the hardware market - and the top six models listed in the report account for 87 per cent of micros now in use, and the report asserts that it's difficult to see any long-term future for less popular models or for new entrants unless they can offer some important advantage. On the other hand, the software market looks set for its best year ever in 1984, with arcade and adventure games likely to take 70 per cent of total sales.



A bit weird, maybe, but this is Intelligent Interfaces' Syncan II - which enables Commodore peripherals to be used with the BBC Microcomputer as though they were standard floppy disks and printers. A specially-written disk tiling system and printer driver routines are supplied in ROM, which makes the operation of Commodore peripherals totally transparent to the user of the computer - programs written for BBC disks and printers can generally be used without modification with Syncan II. Doesn't work with the 1541 but should be of value to anyone who used Pets in the past and now has a BBC computer with the Commodore peripherals still available. The price is £156, the contact point is 0789 296879.



This is the IMPACT 20 parallel interface from joystick maker Voltmaxx. On the left is the IMPACT 16C, a 16 way programmable keypad for the C64 computer that plugs into the two joystick sockets; when combined with a program on cassette which enables you to choose the alphanumeric value of the keys. The keypads are programmable with the remainder blank - "it's better to leave alternative interfaces when we have a better idea of what we want to do with them," says Volmaxx, "and will return" at 0208 240000.

The other item is the IMPACT 20, the IMPACT 20C, and IMPACT 20D which consist of an unbreakable shielded wire lead which connects to the computer via the joystick ports. This provides an easy-to-use way to hook up the computer. "Everyone has just got used to the joystick," says Jim, "but we've found that the joystick is the best way to play games." The three are from Voltmaxx, the IMPACT 20C will cost £175.

We're requested written reply. Meanwhile, Jim, how's Voltmaxx? (0208 240000).

### • SHORTS •

Comal quip: Brian Grainger's COMAL series is apparently generating a fantastic response. So you might like to know about the COMAL Users Group at 3501 Groveland Terrace, Madison, WI 53718 USA - they appear to be well-organized, and certainly have a lot of COMAL goodies to sell at basement prices. Including a disk COMAL for the 64 at only \$19.95.

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# Printers

# Hard copy for Commodore

## The MPS-801 printer reviewed

by Ken Ryder

When choosing any printer for your Commodore computer the software you intend to run should be taken into account. Why? Because many low-cost software packages such as Abracalc and Easy CalcResult support only Commodore printers.

Word processing is a little bit pointless without a printer. In fact Commodore's disk drive offer including Easyscript for free is a great way to sell printers! But the advantages of adding a printer to your Vic-20 or 64 are numerous.

It is far more convenient to read and modify a program listing on paper than to scan through it woe-odd lines at a time on screen. For small amounts of data it is often quicker to look through a hard copy of records, than program up the computer, load the program, load the data and then access the information - particularly if it is all on cassette.

For example records of names and addresses can be kept in a book of printout next to the telephone. The records are maintained on the computer, and the book updated via the printer as changes occur. The same goes for other records, such as diary or financial statements.

Commodore has discontinued the 1515 and 1525 printers in favour of the MPS-801 dot matrix printer. At 20 characters per second both the 1515 was slow and noisy, using narrow non-standard paper too the 1525 had a standard paper width but was no faster.

Both printers cost £230 when first introduced. The MPS-801 costs the same; but for that you get a faster print speed (30cps) with a reduced noise level, and modern styling.

### What you get

A power cable and serial communications cable are provided. The power cable is a respectable two metres long, but sadly lacks a plug.

The ribbon is supplied in a plastic cartridge with an easily replaced ink pad, so you don't have to replace the whole cartridge when the print fades, just the ink. At £5.90 per cartridge including VAT that is just as well. Commodore was unable to give me a price for the inkers which tells you something about their availability. The Commodore is more convenient than the long ribbon and two reels supplied with the 1515 and 1525.

The documentation indicates that the cartridge should be easy

to insert. There is certainly plenty of room to work in, as the front cover is easily removed. But a tension knob must be rotated to locate on to a lug as the cartridge is pushed into place. I found this a little awkward, and the cartridge did not snap into place as indicated - some manipulation of the retaining clips was needed finally to locate it.

### Documentation

The documentation is to Commodore's usual painful standard. The 44-page typeset booklet is the same A5 size as the manual supplied with the Vic and 64. The instructions start with a general description of the printer, photographs pointing out the main features (the power lead is shown with a plug). This is immediately followed by a description of the serial interface, the device selection switch and a cursory mention of secondary addresses - all before the booklet describes the fitting and removal of the ribbon cartridge.

Paper loading is not so well covered. When the printer arrives the tractor feeders and central rubber support are positioned at the far left of printer and must be dragged along the hexagonal bar which drives them. They are only held by friction, and the paper is inserted under a hinged plastic flap which separates incoming paper from the outgoing. The flap can be removed to ease paper loading, but that wasn't mentioned and I only discovered it when it came off in my hand!

I would like to have seen an alternative slot in the base of the printer for bottom entry feed. This is usually found on more expensive printers and provides for a more direct paper flow, usually through a slot in a desk. Though this would be a drastic modification to the dining room table, the printer could be stood on a plain pedestal or a box of paper - the output could then be

collected behind the printer. As paper feed and output is through the back you would expect the rear of the printer to be free of obstruction. Instead the two serial ports are located in the rear together with the device selection switch. They are positioned about 2cm from the right hand edge of the paper.

The two serial ports are provided so that several devices can be daisychained together. The device selection switch has three positions, two set the device number to be 4 or 5, the third position sets the printer head by printing out the character set continuously. Two device numbers enables you to run two printers connected simultaneously - say one daisywheel for word processing, one dot matrix for graphics (hang the expense).

Direct connection of the printer to the computer is described in the booklet but no mention is made of daisychaining via a dot matrix drive.

Then comes a classic mistake which describes the movement of the printer head on power up. The documentation indicates that the head should move once to the centre of the carriage and then return to its original position. In fact it moves a quarter of the way twice. This kind of thing could lead you to think that something is wrong with your new acquisition.

This error is almost as good as the one in the disk drive manual which firmly instructs the user not to open the drive door while the green light is on. The green light is always on, the reference should be red light, of course.

Section 3 describes how to direct output to the printer with the OPEN, CMD, PRINT<sup>e</sup> and CLOSE commands, both direct and under program control. The secondary address can be used to set the character set available - graphics and upper-case mode, or upper-and-lower-case. These are called 'cursor up' and 'cursor down' modes, which is

misleading, in fact the instructions are generally disjointed or vague, riddled with spelling mistakes and missing words. Whoever proof-reads these manuals must be intending to flood the market with authoritative books on Commodore products ...

### Printing

Several printer modes are available, and are set with a CHS code (see table 2). Printing can be performed in one of two character sets, just like the 64 or Vic themselves - except that both character sets can be used in the same line.

Both sets may be normal or reverse text; the latter is particularly useful for emphasis. In addition all the characters in either mode can be printed double-width, which is useful for titles (double width reversed characters are also available).

The versatility of the printer lies in its ability to mix modes freely. For instance, double-width upper-case/reverse characters can be combined with normal-size lower-case text starting at a given dot position.

The basic TAB statement does not work properly with the PRINT<sup>e</sup> statement. Instead a character code, CHR\$(16), sets the tabs for the printer head. The print head will move to the specified column and start printing.

There are 80 columns of characters and each character is made up of six columns of dots, giving a grand total of 480 individual dots in a row. Printing can be started at any individual dot position, see the sine curve example for just how good this is.

### User-defined characters

The advantage of a dot matrix over a daisywheel printer is its ability to produce characters to the user's own design, such as logos or Greek symbols within formulas.

# Printers

This is done in a similar manner to user definable graphics on the Vic or 64 but the grid is limited to 8 x 7. Again, these characters can be mixed with standard characters.

The other great advantage of dot matrix printers is their ability to draw pictures. With suitable software the user definable graphics option can be used to take a hard copy of a high-resolution screen. This is not even hinted at in the documentation, naturally.

The last graphic mode allows a single row of seven dots on the print head to be repeated a given number of times. This is useful for underlining, or producing horizontal bar charts.

## Controls

The styling of the printer is neat, certainly a contrast to the functional look of the 1515 and 1525. Except for the previously-mentioned selection switch and cable sockets all the controls are well positioned and convenient to use. A green light glows through the top of the casing indicating that power is on. The light is next

to a rectangular area on the casing about the size of the Commodore shift key. Slight pressure on this rectangle causes the paper to advance one line at a time until pressure is released. Alternatively the paper can be advanced manually by a large handle on the carriage, which is much more convenient than the thumbwheel provided on the 1515.

## In conclusion

The lack of true descenders and its restriction to sprocketed paper feed obviously makes it unsatisfactory for good-quality word processing; but the MPS-801 could be used for something like club correspondence where the recipients may not be too fussy.

The printer is a neat good-quality piece of kit, using readily-available standard-size paper (about £14 per 2,000 sheets). It is eminently suitable for program listings or address labels in upper case.

Shame that such a versatile product is supplied with poor documentation.

## Character matrix

### Characters

6 x 7 dot matrix  
Upper/lower case characters, numerals, symbols, and 16 graphic characters

### Graphics

Dot-addressable: 7 vertical dots per column, max 480 columns

### Character codes

#### Character size

#### Print speed

#### Max. number of columns

#### Character spacing

#### Line feed spacing

#### Line feed speed

4.5 to 10in width (inclusive of tractor feed holes). 8½in width (after tractor hole removed)

2 including original Single colour, inked roller built-in cassette type

237D x 438W x 115H mm

Approximately 4.8kg

### Paper feed

### Paper width

### Multiple copies

### Ribbon

### Dimensions

### Weight

Figure 1: Specification of the MPS-801

<b>Enter graphic mode</b>	CHR\$(8)
<b>Line feed after printing</b>	CHR\$(10)
<b>Carriage return</b>	CHR\$(13)
<b>Enter double-width character mode</b>	CHR\$(14)
<b>Enter standard character mode</b>	CHR\$(15)
<b>Tab setting</b>	CHR\$(16)
<b>Enter cursor-down mode</b>	CHR\$(17)
<b>Start reverse-field</b>	CHR\$(18)
<b>Repeat graphics selected</b>	CHR\$(26)
<b>Specify dot address (must follow printhead tab code)</b>	CHR\$(27)

<b>Enter cursor-up mode</b>	CHR\$(145)
<b>Turn off reverse-field</b>	CHR\$(146)

Figure 2: CHR\$ controls



Figure 3: Print sample

Under review	MPS-801
Printer type	Dot matrix printer for Vic and 64 (Commodore Business Machines)
Memory	16K RAM (RAM)
Keyboard	None (standard keyboard)
Dimensions	Width x height x depth
Weight	4.8kg

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Allows up to four cartridges to share the VIC 20 expansion connector. Switches allow two of these ports to be switched in or out, or to be relocated in memory. The VIXEN also incorporates a socket which accepts software in PROM form: a utility PROM is already available (not supplied) which adds 18 new and useful commands to VIC BASIC. £31.95 (p+p 50p)



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- Vixen Switchable Motherboard at £32.45 (inc. 50p p+p)

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*Tommy*

# TOMMY'S TIPS

Tommy is Commodore User's resident know-all. Each month he burrows through a mountain of readers' mail and emerges with a handful of choice queries. The result, before you, is a wedge of priceless information and indispensable advice. There's even the odd useful tip as well.



Dear Tommy, My friend lent me a tape of Wacky Waiters. To my amazement it failed to load. All I got was the computer searching right through the tape as if there was nothing. On trying again I got as far as zero. This has also happened when trying another tape.

I am puzzled by this and would be grateful for a solution.

I assume that the same tape did load on your friend's machine, in which case we can rule out a faulty tape.

The first thing to do is make sure that your tape heads and the punch rollers are all clean. It is a good idea to invest in one of the 'tape head cleaner and de-magnetiser' tapes you can buy from Smyths or Boots etc and use it once a week, under normal use. Alternatively, clean the heads with a cotton bud soaked in a commercial head cleaner fluid (you can get it at most Hi-Fi shops).

If that still does not solve the problem then it is possible that your tape heads are out of alignment. If you can save and load your own tapes without difficulty, but are unable to load anyone else's tapes then this is almost certainly the problem.

It is possible to rectify this yourself if you know what you are doing otherwise you should take your recorder to your dealer (especially if it is still under guarantee) and ask him to sort it up properly for you.

Dear Tommy, I wonder if you can help me. I've got this problem with my Commodore 64. I cannot get it to understand the word PLOT, it just doesn't want to. I've tried everything I can think of but with no success. I've looked in the manual but I just can't find out

how to do it. Then I found in the manual a bit that told you how to put a dot on the colour memory map by POKEing these numbers: 1524, 81 and 55786,2. I tried these and they worked; so then I started to play about with them, but with no success. Could you give me the solution for this problem?

The simple fact is that there is no such command in Commodore Basic as 'PLOT (oh, would that there were!)'. Unless you buy one of the many extensions to Basic which include this command, or something similar, there is no way you can plot points on the screen in Basic without using lots of POKE commands.

What the two POKEs you have quoted do is to print not a dot but the round ball character (Shift Q) in row 12, column 20 then set the corresponding location in the colour map to Red.

If you want to go into high-resolution mode to plot lines or even single dots, life gets rather complicated, basically you have to set up a hires screen area which occupies 8000 bytes of RAM. Basic can be used to plot lines and suchlike, but it is extremely slow. Machine code is the only real answer for anything like high-speed plotting.

If you are really interested in pursuing this then it might be worth your while buying the Programmers Reference Manual (\$10), this contains at least some hints on using the bit-mapped mode for graphics plotting. Alternatively, why not purchase one of the Basic extensions which will allow you to 'PLOT' to your heart's content?

Dear Tommy, The display on my C64 is flickering whenever the computer is packed in a box or a wall or similar endless sleep. Small twinkles appear around characters like D, E and F although the rest appear normal. However — if the character set is moved to RAM, then all characters appear normal and without flicker. What could be the cause of this?

The C64 seems to have a strange bug. Press both cursor-

keys permanently and then press the shift key repeatedly. You should then be able to observe some spades on the screen, if yours has the same screen.

It is possible to load Vic-programs into the 64 via the cassettes unit. You only have to diminish the motor-speed a little. This is done very easily by mounting a 27 to 31 OHM resistance in series with the cassette-motor's power supply cord. You will have to experiment a little in order to find the correct value — unless you prefer an adjustable potentiometer. Perhaps it would be a good idea to mount a switch so you could switch the resistor(s) in and out as needed.

The flickering is caused by the swapping in and out of the ROM-based character set. The ROM areas overlays the same address as part of the RAM, whenever the computer prints a character it has to access the ROM to do it by swapping the ROM area into the memory map. It is this constant changing that causes at least some of the flickering you can see.

When you tell the computer that the character set is in RAM, it doesn't need to swap the ROM set in and out, hence you get no flicker.

I am afraid that your 64 down not have a bug; all 64s will produce characters if you press certain combinations of keys simultaneously. This is because the keyboard does not have individual lines to each key — instead the keys are connected in a 'matrix' of rows and columns. When the computer receives the signals on the different wires, it translates these into a unique key position in the matrix. By pressing more than one key at a time (other than shift etc) you are just fooling the computer into translating that combination of signals into a completely wrong key position. Most of the combinations are meaningless and produce no character as a result; some however, reproduce the combination which a valid key would generate. You therefore get the same effect as if you had pressed just that key.

Dear Tommy, I have recently purchased a Commodore Vic-20, and I wish to expand the memory. Could you please advise me on which kind of memory pack to get? I have seen advertised a Super Expander, a 54K RAM pack switchable, and a 15K standard; could you please tell me what is the meaning of Super Expander, switchable RAM pack and standard RAM? And what are the drawbacks and advantages of each? If I expanded to 64K could I run games and programmes meant for a Commodore 64? Could the RAM packs and Super Expander plug into the computer itself? Or does it need an interface? What is meant by block 1 or 2 or 5? And what is a Mother Board?

These may seem simple questions but I don't know anyone who can answer them for me. I eagerly await your reply.

P.S. What is Hi-Res Graphics? And I have seen plenty of ads for 32K RAM packs but none for 64K. Could you please tell me *where* to stock this?

Wow where to start? Basically the Vic's memory map has a number of 'slots' for extra memory. There is a 32K 'slot' which can be filled by any 32K RAM pack, which includes the Super Expander (this also gives additional commands in BASIC to make plotting and sound much easier to control). There are also three 8K 'slots' and it is here that the blocks come in. Block 1, 2 and 3 are the three 8K RAM expansion areas, while block 5 is the area of memory reserved for ROM cartridges (an 8K RAM pack can also occupy this area but cannot be used for BASIC).

The various 'switchable' packs merely allow you to select which blocks of memory you wish to use, some 32K packs include a 32K RAM option as well, but you should be aware that you can either have 32K extra RAM or up to 32K extra RAM for BASIC programs, but not both at the same time. For machine code however, up to an extra 35K RAM

can be accessed.

As far as using a 64K RAM pack, this will not allow you to run games intended for a 64 unless they don't use sprites sound or contain any PEEK and POKE commands highly unlikely in practice.

The Super Expander will allow high res graphics which is a fancy way of saying you can draw lines etc anywhere on the screen and if all you want is a little more memory to run larger programs then a standard 16K RAM pack will probably be quite adequate.

As for the motherboard, this allows you to plug in two or more cartridges at the same time, you will gather from this that you will need one if you want to use the Super Expander with 16K extra RAM.

**Dear Tommy,** I own a Vic-20 with a standard Vic-20 16K RAM pack. When the RAM pack is added the total memory comes to 19267 bytes. I have seen several softtimes in your magazine for conversion from 16K to 32K unexpanded. I have tried these and they do work, well nearly anyway.

That is where my problem comes in. After entering the necessary POKEs to reconfigure my Vic, I cannot seem to enter any programs. I can key in the first line of a program but as soon as I press return the keys become unfunctional and then I cannot enter what I would like to. What is wrong?

You have made an assumption that unfortunately is not valid, and that is that reconfiguring the Vic actually moves the memory to a different location. The 16K RAM pack fits into the memory map between locations 1024 and 4096. When you fit a 16K RAM pack into the Vic it automatically changes the memory map, unloading the 32K RAM area. All the conversion program does is to load the Vic into thinking that the 16K RAM pack isn't there and re-sets the memory pointers to include the 32K RAM area again. Unless you actually have a 32K RAM pack fitted what you have done by running the conversion program is to try to store your program in a large hole in the memory the Vic will assume that the memory is there because you told it so! However, you should still be able to run the conversion to give an un-expanded Vic without problem, so if you get trouble with this as well you should check your programs very carefully for any errors.

**Dear Tommy,** I am in the process of writing my first adventure and I have two questions — which, if you have time to answer, will enable me to complete it:

1) How can I get my Vic to recognise how many words are in an input statement? For instance if the user has entered three words into a variable and the adventure game uses only 1 or 2 words, how can I get the computer to recognize the mistake and tell the user about the error?

2) In writing the program, which would be more suitable to use:

```
10 INPUT RS  
20 IF RS = "GO ROOM" THEN?  
    "OK"
```

or

```
10 AS = "GO ROOM"  
20 INPUT RS  
30 IF RS = AS THEN  
    PRINT "OK"
```

The first problem can be solved by checking how many spaces there are, thus if there are only two words you should only find one space and so on. The following short piece of code will do just that:

```
1000 SP = 0 SS = ""  
1010 GET AS: IF AS = "" THEN  
    1010  
1020 IF AS = " " THEN SS = SS  
    + 1  
1030 PRINT AS: IF AS =  
    CHR$(13) THEN SS = SS  
    + AS: GOTO 1010  
1040 IF SP = 1 THEN PRINT  
    "ERROR - TOO MANY  
    WORDS"
```

This is a simple solution and would fail if the player stuck an extra space at the end of the line by mistake. You can improve the code by checking to see if the space is the last character of the string and ignoring it if it is. If you used the above as a subroutine, on return the variable SS would contain the input string for you to work on as normal.

That brings me nicely on to your second point, using the first method will mean you have to write out all the tests for the strings in full. This is fine for one or two, but is less than perfect if you have to check 100 or even 20. If you combine your second method with an array of valid words then you can set AS equal to each part of the string in turn and check what the first word is, then the second, see if they are a valid combination and only act if they are. This will give you much more flexibility to alter or expand the game later on leg

GO can precede N S E or W, but later on you may want to expand the game to allow S E SW NE and NW!

Good luck with the adventure writing anyway!

**Dear Tommy,** I wonder if you can offer any help with the following problem. I have a Vic-20 and an Epson RX80 FT printer. I realize that the printer will not deal with all the Commodore graphics, but I cannot even send the correct commands to make the printer type lower case letters. Is there a way to do this?

I also find that if I type "PRINT #1" the computer ignores the command, but if I type "#P (shift)" the computer responds. Why should this be?

Finally the program for the Vic-20/Epson RX80 appears to have a mistake in line 137. What should this line read, please?

One problem with answering this sort of query is that it depends on which interface you are using to run your printer. Commodore printers require a specific serial address when opening the print channel in order to print lower case, most printers interfaces also need a specific command when opening the print channel before you can get both upper and lower case.

The reason for this is that the Commodore character set is not standard ASCII. In normal mode the letters are all upper case with graphics symbols in place of shifted letters. Most interfaces do a conversion from Commodore to ASCII when sending characters to the printer. All the interfaces I have seen either have a hardware switch or a software selection method which determines whether or not this conversion is done.

I suggest you read the manual (or whatever) that came with your interface, there should be some thing there to help you.

Your second problem is rather puzzling. When you say the computer ignores the command do you mean you just don't get any printout? As far as the computer is concerned "PRINT #4" and "Print R#4" are the same command, if one works, they both should. Ask your dealer if you can try the commands on another machine — if yours does not work the same way as his, I suggest you take it in for repair. The only other possibility is that your software printer interface has a bug in it, in this case the problem will arise whenever machine you try run it.

With regard to the last of the Vic-Epson program printed in our December 1983 issue, I don't know what you thought it should be, but I assure you it is perfectly correct. What it is doing is setting up an array with the values of 2 to the power X where X is supplied from 0 to 7. This is used later in the program to mask off the bits of an address one at a time in line 190. If A is the top arrow symbol that you find it is the key to the right of the '.

**Dear Tommy,** Could you please tell me if it is possible to get programs written on the Vic to run on the 64. I am considering upgrading to a 64 and I am wondering whether I could adapt the programs I have written on the Vic without too much difficulty.

It all depends upon how you have written them. Basic programs should run without too much trouble (provided you have not filled them with PEEKs and POKEs) because the two Basics are identical. The major change here is we accommodate the fact the 64 has a 40 column screen so you won't run into screen display problems when you look back with a cartridge format.

In the PEEKs and POKEs which as always cause the problems. Fortunately Commodore have gone to some lengths to make your job as easy as possible here. POKEs use locations below 1024 are likely to be unchanged. The screen memory now starts at 1024, and the corresponding colour area is \$5520.

The procedures for high-resolution graphics and sound have

**Dear Tommy,** You have written about the Whirly Softchip for the 64, and I would like to know how much RAM this would take up. I understand that any program written using the extra Basic commands cannot be entered into the computer without this cartridge being inserted into the computer.

The Whirly Softchip takes up 812 bytes of memory, leaving you with 30712 bytes free. You can still run a program into the 64 without the Softchip plugged in, but if you try to run it you will get a SYNTAX ERROR from the added cartridge.

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# INSTRUCTIONS FOR SURVIVAL

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# BOOK LOOK

## Commodores and Kids Books and programs for children

reviews by Clive Bulmer and Colleen Young

Home Computers are a natural for kids, feeding their inquisitiveness while featuring enough sound and graphics effects to keep them interested.

There are a growing number of books and programs designed specifically for kids - and specifically for kids with Commodore computers. We collected a few of them and invited a couple of professional teachers to comment.

Computer Playground is a collection of computer activities intended for children up to about eleven years old. "Each activity is presented as a problem in a workbook encouraging the user to learn how to use many features of the BASIC language. In doing so, the child will also build up a collection of programs which are both understood and entertaining". Well, that's the theory behind this publication.

To find out how much of this blurb was true, I loaned the book to a colleague, who happens to have a young child and a Commodore 64. I also checked it out on my own daughter.

Both found this book excellent, especially in the way it is presented. The print is clear; the instructions are very straightforward to follow, the use of colour is also effective from the point of view of a child. The only criticism any of us made about this book was its actual shape - though I feel it to be just right: a book aimed at such young readers does not need to look like a manual!

Perhaps the only serious caveat on this otherwise excellent book is its rather high price, inevitable perhaps for an import. But the satisfaction and joy that Computer Playground should give to its young readers - who couldn't fail to be absorbed by its pages - more than justifies the £12.70.

**Computer Playground**

**Computer Playground**  
Commodore 64/VIC-20

The Book:  
The Author:  
The Publisher:  
The Price:  
The Reviewer:  
The Conclusion:

Computer Playground  
M.J. Winter  
Datamost (various UK importers)  
about £12.70  
Clive Bulmer  
Excellent, even at that price

**I Speak BASIC to My VIC**

**I Speak BASIC to My VIC**  
Anony E. Mouse

The Book:  
The Author:  
The Publisher:  
The Price:  
The Reviewer:  
The Conclusion:

I Speak BASIC to My VIC  
Anony E. Mouse  
Datamost (various UK importers)  
about £12.70  
Colleen Young  
Excellent for beginners. That's all.

*T. Noble*

This book is designed to teach Vic Basic to youngsters in the range from 10 to 14 years old. It gives guidance, explanations, exercises, reviews and quizzes, and it does that in a total of 33 lessons, each one being quite well set out and easy to follow.

I have used some of these 'lessons' with small groups during out-of-school activities and found them to be quite well received. Some pupils even wanted to take the book home for self-imposed homework - itself a good pointer to the book's usefulness!

Teachers should find this book of equal interest, though, especially with regard to the various programming sections/areas covered. The only comment I can make are the fact that the book is written with much American jargon - but then, it is American, the jargon is not too frequent.

The program listings, although clear, were not produced using a Vic primer; graphic character keys such as 'cursor right' have to be denominated by CTR. (In view of the quality of the 1516's print, that might not be such a bad thing - Ed.)

The book is spiral-bound, an idea I like though I don't think this a practical idea for use by children in a classroom situation.

To conclude, *Kids and the Vic* is a useful publication, but in my opinion falls short of Tony Noble's offering.

Another American-produced publication, Aubrey Jones' book is aimed primarily at students following a computer course in school. It is accompanied by a teacher's manual which contains suggestions for implementing the course and annotations to aid the teacher in lesson planning. There is also



available a set of spirit duplicating masters which reinforce key concepts hopefully. The UK distributor, Prentice Hall, can also supply these.

The book itself is well set out, very easy to follow and divided into 15 parts. These range from a look at hardware items to arrays and subroutines. Most lessons have eight essential components - objectives, definitions, examples, exercises, assignments, a summary, one or more practices and a quiz. The book is very much teacher/pupil oriented, and although aimed at schools in America, it will still be of use to other readers studying Basic.

Where the book loses points is its lack of vision with regard to moving graphics and sound. I couldn't help feeling at times that despite the size and thickness of this publication, much of what it was trying to put over has been covered in the user guide just as effectively.

Nevertheless, *I speak Basic to my Vic* may be the book for you to study at home rather than its original concept of teacher/pupil package for use in schools.

## The Vic-20 for Children

**The Book:** The VIC-20 for Children  
**The Author:** Tony Noble  
**The Publisher:** Sigma  
**The Price:** £5.95  
**The Reviewer:** Clive Bulmer  
**The Conclusion:** Excellent

At last - a book written for a specific machine, aimed at a specific type of person, produced by an educationalist. (And it's both relatively inexpensive and British - Ed.)

The Vic-20 for Children is exactly as the name implies. Yet despite its title will prove an invaluable companion to all new Vic-20 users, children or not. It's written in a clear, easily understood style. I was impressed with the quality of printing and the use of graphics in this publication - others take note!

Tony Noble is to be congratulated on this book, especially for the way he takes the user from the task of switching on to the task of designing and writing programs in twenty nine practical programming steps - a highlight of this book. Many listings are included, all guaranteed to work as they have been printed using a Vic primer. Within these pages a reader will find programs which include mathematics practice, code breaking, simulations, arcade and adventure-type games.

Rush out and buy a copy of this excellent book. At £5.95 it should sell pretty fast!

# The Trashman Cometh

(Part 1)

by Jim Butterfield

garbage collector...  
...some programs can't handle it.  
modern machines, of course  
Much of what is said here may  
be applied to other computers.  
The specific remedies that will  
be given for Vic 20, Pet and the  
other CBMs can be adapted to  
suit the different logic of other  
machines.

versely, not all  
old machines have  
collection problems; for  
example, machines identifying  
themselves as running BASIC 4.0  
don't have these delays.

An example: Try this on your  
computer:

```
100 DIM AS(100)
110 FOR J=1 TO 100
120 AS(J)=CHR$(65)
130 NEXT J
140 PRINT "X"
150 PRINT FRE(0)
160 PRINT "Y"
```

Let's take a few moments to  
run this in the loop to lines 110 to

You would expect that. But  
unless you know about garbage  
collection, you won't expect  
much of a delay in the last three  
lines, after all, they are just  
statements.

Try it. If there's a delay  
between printing 'X' and 'Y'  
that's a garbage collection pause.

To illustrate the odd nature of  
garbage collection, change line

140 READ AS(J) "A" (this is  
the same thing, of course, since  
CHR\$(65) is the letter A. But this  
time the delay disappears when  
you run the program.)

## Why it happens

A program assigns a value  
to a string of variables. It may do  
it two ways:

If the program executes completely  
or the program it will be  
where it lies. There's no  
to make a copy. For  
example, a program statement  
such as 500 AS="HELLO" will  
put the string HELLO right out of  
the program where it lies.

Similarly, if the statements 800  
DATA COFFEE and 900 READ  
AS will cause the string COFFEE  
to move from where the DATA  
statement is won't be moved to  
any other place in memory.

There's a sneaky event lying in wait for  
you within most Commodore machines.  
It's called garbage collection. And it will  
show up, seemingly unpredictably, in any  
of several ways.

Your program may seem to run slowly  
or erratically in spurts. The program may  
have frequent pauses, each of which lasts  
several seconds. Worst of all, the program  
may pause for much longer periods of  
time - a minute, ten minutes, or even  
longer - and will seem to have crashed.

You might be tempted to turn the  
machine off, thinking that it has failed. It  
hasn't. It's just the garbage collector at  
work.

There doesn't seem to be a  
name for this kind of string. I'll  
use the term static string to refer  
to a string used directly from its  
place within a program.

On the other hand, some  
strings can't be used this way. If I  
use a string with an INPUT  
statement or by using a string  
manipulation command such as  
STR\$ or CHR\$, the computer  
must find a place to put this  
newly-formed string. This kind of  
string must be packed away into  
a string storage area.

I'll use the term dynamic string  
to refer to strings of this type.

Now suppose that a running  
program creates a dynamic  
string with the statement INPUT  
AS. The user types in the string  
say, EBENEZER, which will be  
packed into the string storage  
area. Later the program loops  
and asks for more input with  
INPUT AS, and the user now  
types in MARY. MARY, too, gets  
packed into the string storage  
area. But even though Ebenezer  
is no longer needed (it's been  
replaced by Mary), the old string  
is not erased. Instead it lies dead  
in memory as garbage.

Let's talk for a moment about  
the string storage area. It's  
located near the top of available  
Basic memory above the program,  
and above the arrays. Dynamic  
strings are placed at the top of this  
area. As more and more  
strings are created, they work  
their way downward. Often  
many discarded strings will be  
left behind. Ebenezer and his  
friends. Yet no stamp is made  
to reclaim the wasted space.

This type of thing continues  
until the dynamic strings bump  
up to the top of Basic variables  
and arrays. At that time the  
waste space must be cleaned up  
hence, garbage collection.

## Bad timing

Garbage collection can take up a  
lot of time, more about that in a  
moment. Worse, it's hard to  
predict when it will strike. It's  
difficult to code in a JUST A  
MOMENT message when you  
don't know when that moment  
will arrive.



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Battlefield

You can force a garbage collection by using the FREE() function. In order to measure free memory space, the Basic interpreter must repack the strings. But doing this may not buy you much. You'll find that doing a garbage collection saves you no time on the new ones. If the illustrative program above is still in your computer, restore the original lines 120 and RUN. When the program is complete - pause and alt - type GOTO 140. You'll find that the second collection takes just as long as before, even though we know there's no garbage to be collected.

You may estimate garbage collection timing by using this crude rule of thumb:

Garbage collection time =  
(number of dimensional strings)  
x (number of dynamic strings) 10

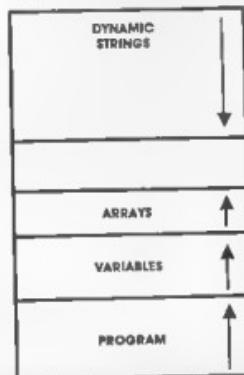
The answer is in milliseconds

Caution: this is a very crude formula. The actual time varies from machine to machine and is also dependent on average string length. If we work out this formula in terms of the example, we'll get 800 times 600 divided by 10 - giving 64,000 milliseconds or slightly over a minute.

Don't worry if your machine gives you a noticeably different time. It's the principle that counts here, and anything over a few seconds is too long. We must learn how to reduce this time drastically.

### Causes of garbage collection

All we need to do is to learn how not to leave waste strings lying



around - no waste space means no need for garbage collection. That's easy for me to say, but it will take another article to go into the details of how to do it.

The following rules hint at the details that I'll give in the second part of this mini-series.

#### Rule 1: Don't move strings around.

It's tempting to move strings when your program is doing a sorting job. Don't do it. Instead of moving strings, move an 'index array'.

#### Rule 2: If you transfer strings into and out of computer memory in 'blocks', set the unused strings to null - for example, AS(X)=".

When your strings are at a minimum, just before reading in the next block, force a quick collection with FREE()

#### Rule 3: Identify the garbage-making areas of your program.

The most common is a GET or GET\$ loop which builds longer strings through concatenation. By adding with pointers immediately before and after such operations, you can perform a local garbage cleanup with great savings of time.

Rule 4: Some arrays may be changed to numeric instead of string. For example "April 6, 1984" may be stored as numeric 06041984 Reducing strings reduces garbage-collection time.

Rule 5: If all else fails when garbage collection seems imminent, write all strings to disk and clear them from memory; force a quick collection, read all the strings back in.

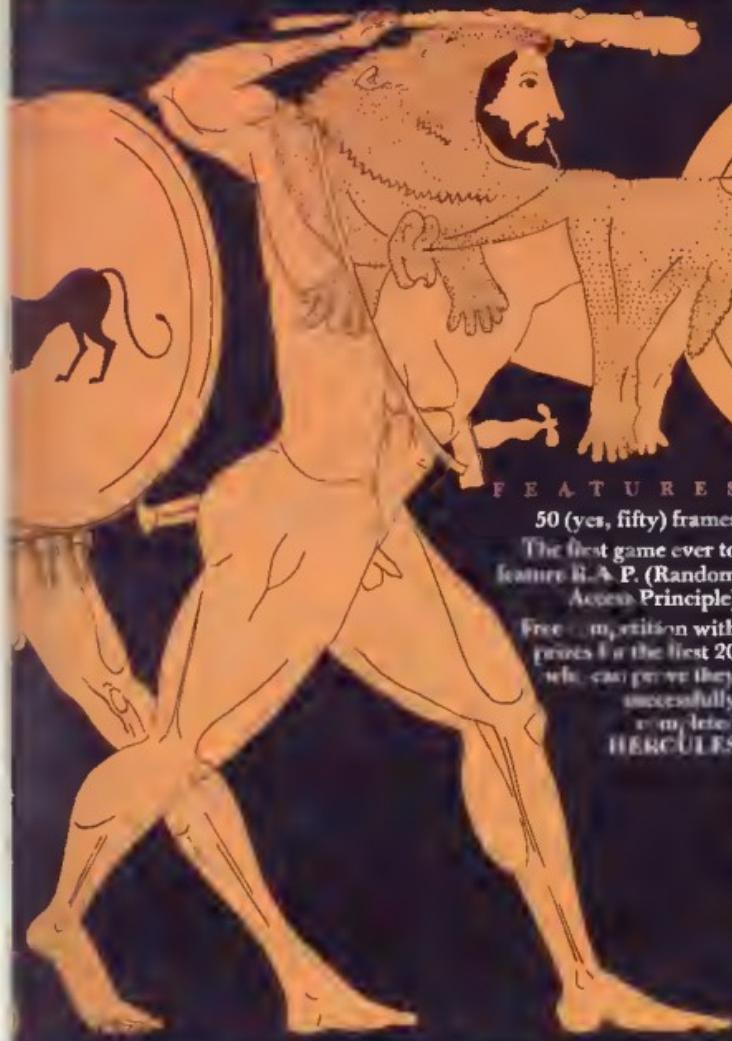
Details on all this next time.

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← Top of Basic memory

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# Profile: Simon Tranmer

by Simon Potter

Many a computer hobbyist must dream of turning an engrossing pastime into a full-time occupation, and Simon Tranmer is living proof that such dreams do come true. Only three years ago, Simon was a strictly amateur programmer, playing around at home with a 32K Pet. Today he still does his computing at home, but with a difference. His workroom is crammed with computers and peripherals (which, he says, are normally "switched on at 8am and switched off at midnight").

He also has a lot of money and a grandiloquent title: Chief Software Designer, Consumer Products. He works for the Surrey software house Precision Software, and he's probably best known to Commodore users as the author of the Superscript word processing package. He has since gone on to write or co-author the Superspell spelling checker, the Superbase database management package, and the brand new Superoffice which claims to combine all three in an integrated system. So how did he get to be a Big Deal?

Simon Tranmer's career began somewhat improbably at a Drama school in East London and a job subsequently as stage electrician at the Queen's Theatre, Hornchurch. Like many others before him, he soon found his enthusiasm for the theatre dimmed by the lack of money and jobs he decided to look for something which at least paid the rent. So he spent the next four years installing and testing telephone exchanges as an engineer for Plessey. Luck seems to have played its part in Simon's career: albeit at times in a somewhat double-edged manner. In this case it came in the form of an offer of voluntary redundancy. Already interested in computers, he accepted the offer and spent some of the concomitant readies on a computer technology course.

The course was very much hardware-orientated, using a venerable CDC 188 (a transistor-based machine of the early '60s) as a training device. Simon reckons, however, that it provided an ideal grounding in computers: "It's very interesting working on a machine like that because you can actually see the discrete components, you can actually see how the machine works at the transistor level. The people that go to such courses now are probably taught on the kind of hardware where if something goes wrong you just take it out and put another one in. You don't get down to the nitty-gritty."

#### Statements of faith

It was also on this course that Simon got his first taste of programming and was hooked. The official programming content of the course was simply designed to enable engineers to understand the computer's logic. But he found himself spending more and more time before and after lectures, programming the 168 in octal machine code. Yuk.

Some of his early efforts were hardly triumphant, and he recalls ruefully one particular program which must lay claim to being the slowest ever written. The 168 had no multiplication instruction at the machine code level, so Simon set out to write a routine to do it. It worked all right but with one small snag - he calculates it would have taken 135 years to multiply two 13-digit numbers.

So he wasn't a programmer. His brand new certificate got him a job with IBM as a hardware engineer; and as luck would have it (again) he joined at a time when the 3030 series was being introduced and the 360 series was fading from the scene. Working on these two ranges as well as the still-current 370 series mainframes gave him wide experience of an awful lot of hardware.

He was still doing virtually no programming, but as he points out, "coming at it from the hardware front you do get a very good idea of what the machine can do, what it's capable of. You also get an awful lot of feedback

on what sort of applications people are using computers for - really a sort of overview of the whole industry."

During his eighteen months with IBM, Simon passed another milestone in his career - the one that was shortly to lead him into home computers. He discovered Adventure. This was 1977, a time when Adventure was spreading like fungus to virtually every mainframe in the country. A real mainframe hacker's delight to replace those clandestine copies of Star Trek and programs that printed lots of pictures of snoopy or young ladies with unlikely mammalian endowments.

Simon rapidly became addicted to Adventure but playing time was limited, especially as many machines had primitive controls which prevented the game being played during working hours. The only way to get unlimited playing time, he decided, was to buy his own computer.

And about this time the first home computers were starting to filter on to the UK market. "Eventually I bought my first Pet," he recalls. "It was an SX 4000 Series with the small keyboard and a cassette player built into it. From I taught myself Basic in about a week and started writing programs."

#### Adventures in the Pet trade

Simon never did get Adventure up on the Pet. But he did write a

number of successful programs, including a football pool prediction program which earned him a slightly unwholesome reputation.

"I'd been entering the results all winter, and by the end of the season I just had enough data for it to be valid. Then the Australian pools started and I didn't bother entering the data for them; but I still did the pools and after a few weeks I won two grand. Everyone thought it was marvelous and said 'Oh, I'll have both' before telling anyone it was just a fluke." Lucky, you see.

Then Pet kept him happy for a while but he soon felt that all-too-familiar hankering for more power! "After about six months I decided it was pretty hopeless trying to do anything really powerful in Basic, and that I needed to write in machine code. And I need disk to do it. The trouble was, I couldn't afford it."

Simon didn't contemplate writing in assembler because at the time there was no assembler available on the Pet. Still, even without disk drives he managed some pretty impressive work at that period - including a very successful version of Space Invaders, hand-coded directly into the machine without even a machine-code monitor to help him. Luckily (again) he was now working for National Semiconductor in a job which left him with time on his hands. He was able to take the Pet to work

and program is there, as well as doing a regular two or three hours a night at home.

Eventually, despite losing his job thanks to another company's 're-organisation', he got together the money to buy the longed-for new machine - a 32K system with disks and a printer. Best of all, a Pet version of Adventure was by now available through the Pet user group - "I played Adventure virtually non-stop for a month when I first got it," he recalls happily.

## Fame beckons

More serious work was just around the corner, though, for it was around now that Simon started work on what would eventually become Superscript. At the time he had not the slightest idea of what he was getting into: "It started off from a little program I wrote which was totally unconnected with word processing. I joined the Pet User Club right from the start and was getting its newsletter. I found this little assembler program in the magazine - it was just displaying memory on the screen. So I played around with it and modified it, and it developed into a thing where I could store and retrieve text. It all evolved from that program."

Great cakes from little acorns grow... in this case with some help from the user group (which is now ICPUG) Simon had started going to the monthly meetings of his local branch at Blyth Hill, taking along his embryo program in the hope of gaining advice from more experienced members. Instead he met with an enthusiastic reception for what was clearly the bare bones of a good word processor.

Simon had never used a word processor, though he had seen them in action in the course of his engineering work. And while a number of the eventual features were based on his own ideas, he relied to a large extent on suggestions and feedback from members of the group.

As the months went by, the program developed - until it finally emerged as Superscript "it didn't take up a lot of memory," Simon recalls. "The code was very compact, so there was a lot of text area; it had a lot of features that the competition (the commercial packages) didn't have - and it was very fast."

Even now it didn't occur to

32 Simon that he had a best-seller



on his hands - in fact, his first idea was to give the program away free to user group members. The cost of producing a manual and supplying the disks made this impossible, though, and the branch members eventually decided to sell it for £30. Which compared pretty remarkably with commercial packages selling for up to ten times as much.

## ... fortune follows

The truth finally dawned at the 1981 Pet Show. Not only was Superscript selling faster than anyone could have made, it was attracting considerable interest from professional software firms - several of whom made offers for the rights to the program. Clearly Superscript was due to take off, and as such it was in need of more care and attention than an amateur group could hope to provide.

Once again, luck was on

Simon's side. His brother John

just happened to be founder and managing director of a company called Precision Software, at that stage Precision was specializing exclusively in Unix-based applications software. Precision Software took over the marketing of Superscript — and sorted out the copyright problems, which turned out to be considerable. Precision also acquired a promising young software designer, one S. Tranmer..

In the last two years Superscript has been developed and enhanced for the Commodore 64 and 700 Series, Superspell and Superbase have been added to the range, and other products, as they say, are in the pipeline.

Precision obviously did a good selling job on Easyscript — not only is it one of the market leaders in Commodore's word processing, it's also the Official Own-Brand Commodore product now.

Meanwhile Simon Tranmer is still beavering away in his front room. Simon claims that the

reason he still works at home is that "If I get up at eight o'clock I can get an hour and a half more work done than if I had to go to an office."

The truth, as he himself admits when pressed, is that it's very difficult to get him away from his machines. He doesn't take lunch breaks or tea breaks, and while he "tries to take some time off between six o'clock and midnight" he quite often works straight through. Hobbies? Of course: whenever he gets the chance, he likes to play computer games with his wife into the small hours.

It could be the story of any amateur programmer, really. Anyways, that is, with the talent to write original and marketable programs, and the dedication to work at it twelve to fourteen hours a day. Of course, it does help to have a brother in the right place at the right time — but who wants it that easy?

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*James*

## Our regular round-up of games reviews

We get to see a lot of games here at Commodore User, so many in fact that we can't handle all the reviewing ourselves - we farm out some of them, which is why our reviews have someone's initials at the end of them. We look at everything we get, but we don't necessarily print all the reviews we write: instead we tend to stick with (a) all the best games we come across and (b) those games that you're most likely to find in the shops or the mail order ads.

**ALPHA BLASTER**  
VIC-20 (any)  
Joystick or keyboard  
Price £7.95

Typical heroic space action within a vertically expanded screen - which makes a change from the usual format. Your ship is placed in an exposed position (the bottom row of the screen) with alien battle fleets massed above.

The first wave, green fighters, traverse the screen raining bombs the second, white kamikaze set out to avenge their buddies just eliminated home in for the kill vertically zig-zagging en route. With your remaining lives you get to negotiate a cyan meteor storm, picking up points for accurate pot shots. A brief respite allowing a rest for your overwrought trigger fingers while the mother ship tops up your fuel; then on to the next wave and repeat the sequence. However fresh marquees have arrived from deepest space to maintain interest and increase the difficulty. How many different waves? Three - then the pattern is repeated, only faster.

Good, fast action, competent, though not outstanding graphics and sonics. There is no doubt that it is more gripping twisting with various distinctive waves rather than the same old stereotyped forms. LS

Sumlock

Presentation: **\*\*\*\***  
Skill level: **\*\*\***  
Interest: **\*\*\*\***  
Value for money: **\*\*\*\***

**BARREL JUMPER**  
VIC-20 (expanded) VIC-20  
Joystick only  
Price £8.95

Another version of the popular arcade game Krazy Kang. To start you have a man at the bottom right hand corner of the screen who you control with the joystick. You have to get him to the top.

To do that you first roll along a girder (picking up small umbrellas as you go); then cross the wooden planks which tend to disappear as



You pass over them. Scattered throughout are ladders and yes, you have to climb up them. Points are gained on your way to the top of the construction via the various objects you manage to clutch hold of.

The major obstacles are barrels which come hurtling down towards you (jump or die!) hence the name. Oh, you gain points if you manage to avoid the barrels too.

The graphics and sound are quite good and the little man is quite clearly defined (better than some I've seen). The program does have a few problems on the loading side, though. I had to ring the suppliers - they were very helpful with their suggestions. Another drawback of presumably greater prevalence is the slight backward movement of the joystick causes your man to fall off the girder. Very frustrating this always happened to me as I got close to the top of the construction.

Apart from these few minor hiccups I thought Barrel Jumper is

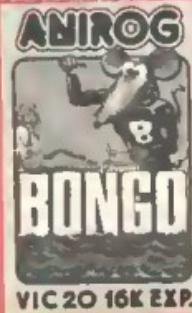
good game a very reasonable example of the genre.

Computer Software Associates

Presentation: **\*\*\***  
Skill level: **\*\*\***  
Interest: **\*\*\*\***  
Value for money: **\*\*\*\***

**BONGO**  
VIC-20 (+16K)  
Joystick only  
Price £7.95

Yet more ammunition for your VIC. Basically this is a man chase and seek game but for the jaded palates there are slides, trampolines and transports that provide opportunities for a bit more fun.



You, a mouse must retrieve five diamonds from the course and avoid capture by one or two rats according to the level. Bonus targets float across the screen, these can be picked up during the slapstick chase. You can be pushed into the river nine times before the familiar GAME OVER appears, so you should at least make a screen two with minimal practice.

To evaluate Bongo is an updated ladder/maze game with run-of-the-mill sonics, decent use of colour, good animation of bold graphics, there's a two-player option and a fully expanded screen. The fun depends on the skill you are able to develop and the application you bring to the game. A worthy addition to the genre - and yes, it is edutainment.

Androp

Presentation: **\*\*\*\***  
Skill level: **\*\*\***  
Interest: **\*\*\*\***  
Value for money: **\*\*\*\***

**CATAclysm**  
VIC-20 (unexpanded)  
Joystick only  
Price £5.95

A fairly basic City Defence game with no twists to entice standard fare. Your gunsight ranges across the night sky over a brightly coloured city blotted out yellow cyan and purple saucers with every stab of the fire-bomb. Bombs are falling like rain on a Bank Holiday day from the spanning space ship that you weren't quite quick enough to intercept and are now steadily flattening the city. As a mild diversion there are a few small vehicles scurrying about the streets of the metropolis - so if you have time you may as well bag those too. Let's face it, the end is inevitable and even very accurate gunning won't alter the course of the story. Bonus points are the only reward. So once you have been beaten to the bugle play the Last Post a couple of times it's a headlong slide to boredom.

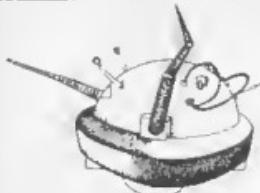
You are presented with an expanded screen (that's fine) and sonics that the Vic owners of an standing will have heard many times and oft. Level 3 does produc-

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*Frances*

a pleasant display with saucers whizzing everywhere, but the game is a pale shadow of Aquadrome's own Outworld. LS

Asidogenesis:

Presentation:	***
Skill level:	***
Interest:	**
Value for money:	***

**CARRIER ATTACK**  
VIC-20 (unexpanded)  
Joystick only  
Price £5.95

Sustain 50 hits and the wake from your ship disappears... the crippled carrier soaks up a few more bombs than submerges beneath the waves. Before that situation is reached the odds are that you have fended off wave after wave of bombers and their fighter escort. The shells from your two guns can be guided in mid-air, which comes in handy for intercepting bombs apart from downing planes.

The screen read-outs relate the

wave number and the points so far (each shot fired gives a minus score). Effective bomb blasts and general graphical representations allied to good use of colour and special effects, but no cause to rave over the sound, even though there is a smidgen of Beethoven.

Genuine skill is needed, along with economy of ammunition, to attain a high score. Suitable for hyperactive blasters with a keen sense of timing. LS

Rabbit

Presentation:	***
Skill level:	***
Interest:	***
Value for money:	****

**CHICKEN CHALLENGE**  
VIC-20 (any)  
Joystick or keyboard  
Price £5.95

A poor man's Frogger, but using chickens; you have to see your five chickens home to their roost!

UNEXPANDED VIC-20

**CHICKEN CHALLENGE**



**micro-antics**  
exceptional software

The format is basically the same as Frogger's with moving cars, ducks and chicken peep(!) to avoid.

As with all such games you have a time limit. You get six chickens, so you still have a chance to get the five home, but the task is made more difficult by the driving ducks - and the fox which suddenly appears in your nest. And as you go on to harder screens new animals appear, such as the chasing foxes which appear as you pass the cars.

The keyboard and joystick operation this time is very good, you move quicker using the keyboard than the joystick, but some people would be happier with the stick.

The graphics and sound are ok with some too-well defined chickens resembling squatting space invaders. The sound is fair, but there is a constant irritating tone which can't be turned off. On the whole not a bad little game but nothing to get excited about.

Micro Antics

Presentation:	*
Skill level:	*
Interest:	***
Value for money:	**

**CENTROPODS**  
VIC-20 (any)  
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Price £5.95

A frenetic version of Centipede (again) with an expanded black screen featuring all the usual characters plus a malevolent moun-

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*Monthly*

*James*

He's a boddie of the purple leaping spider but employs different tactics, namely streaking straight across the screen on the row you're occupying.

Cue down is the colour scheme is the choice of blue for your gun; it can appear indistinct. But at least the centre of attraction is depicted well enough. With 'digging up' the road screen once the whole experience could prove annoying to the more sober amongst us - but not to confirmed insect stampers. You won't find many better versions for the basic Vic 1 I liked it bring on the next! LS

Rabbit

Presentation:	****
Skill level:	***
Interest:	***
Value for money:	****

<b>CONQUEROR</b>
16K expanded Vic 20
Joystick or keyboard
Price £15.95

Conqueror is an adventurous game with an old theme. You are the king of a country in Europe to hang on to your kingdom you have to feed your people and make sure they have enough money to survive. The game can have up to 13 players - each with their own kingdom.

To do that you have to invade your neighbours, there are soldiers and a supply of bows or swords to help out. The main object of the game is to conquer all the other countries by any means of foul.

The game has three seasons per year in which you can make ploughshares (tools to sow crops, beans from the swords) or war, you can also tax your people to give you more money as well as what - but if your people leave or die you lose. Clausewitz was never this close.

The destruction booklet is quite comprehensive but you do need to keep referring to it if you really want fully to understand the game. Still, even though there are no graphics it's an excellent game - stra last because it brings out the killer instincts in me. The power and might also find the game enjoyable. LS

Computer Software Associates

Presentation:	***
Skill level:	***
Interest:	****
Value for money:	****

## DRM BUSTA



**DAM BUSTA**  
Vic-20 (unexpanded)  
Joystick only  
Price £5.95

This could have been just another game rigidly enacting a shallow plot, but real effort has been put in here. For starters there are two screens for the convulsing-looking frogman to operate us and accomplish his dam busting in order to place his bombs he first has to harpoon and wriggle his way through a shoal of variously coloured barracudas. Which brings him to screen two, where his shrapnel cuts with a phalanx of pugnacious piranha guardians — at the same time avoiding depth charges dropped willy-nilly by a chopper. Assuming he had the foresight to surface and replenish his air supply, he could well place a bomb against the dam and dash back to screen one just in time for the explosion. He will need three in a row in order to pull out the plug.

No easy task, but at least the graphics are of sufficient quality not to pall during a long session. A neat, interesting game with a lot happening in 3.5K. LS

Rabbit

Presentation:	****
Skill level:	***
Interest:	****
Value for money:	****

**DESTROYER**  
Vic-20 (unexpanded)  
Joystick or keyboard  
Price £7.95

A fair amount of action for the basic Vic, with attacks coming from submarines and bombers. A radar scanner gives you an early warn-

ing as to the direction of the raiding aircraft, but you'll be alerted even earlier thanks to the sound effects. Two guns and depth charge pads are your means of retaliation along with direction controls, this means six keys need pressing almost con-

tinuously. Even though the game is good fun, I do feel that more colour could have been added and the explosions improved. The verdict not an essential part of a collection, but perfectly acceptable nevertheless.

Sumlock

LS

Presentation:  
Skill level:  
Interest:  
Value for money:



**DUCK SHOOT**  
Vic-20 (unexpanded)  
Joystick or keyboard  
Price £1.95

You certainly get your money's worth here, it's value all the way, from the background music to the fully expanded screen. Everyone has seen a shooting gallery, and

Presentation:  
Skill level:  
Interest:  
Value for money:



£1.95

here you get three rows of moving targets: purple owls, white rabbits and yellow ducks. All need one bullet to be knocked down, but if a duck is hit in the next row it gains a life and changes colour - first to green and subsequently to cyan. If any duck passes through all three rows it will gobble up lots of your bullets. But don't despair, there are '3' and '10' targets to go for extra ammo.

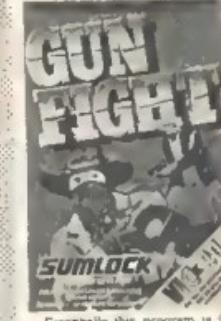
Eight speed levels, high score retained and a logical scoring points system (higher points for targets further away) plus extras for bullets and time remaining at the end of each screen. In no way is this cheap and nasty just chaps.

Mastertronics

Presentation:  
Skill level:  
Interest:  
Value for money:

**GUN FIGHT**  
Vic-20 (unexpanded)  
Joystick or keyboard  
Price £3.95

Let me say straightforwardly that you may be disappointed with the representation of the gunfighters. That apart, though, the graphics are fast enough - purple rocks, green trees and yellow cacti.



Essentially this program is intended as a two player duel, though the computer will act as a stand-in. Start by selecting the duration of combat, up to nine minutes, then jockey for position and pump in some killer shots. Seek cover behind a cactus at your peril, for they can be shot away, and beware of bullets ricocheting off rocks. It goes without saying that respective tallies are displayed continuously.

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Commodore User March 84

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come.



With a different layout for each context, and decent sound effects, this tape should find itself no shortage of shortlists.

LS

Sumlock

Presentation:   
Skill level:   
Interest:   
Value for money:

**GRID TRAP**  
VIC 20 (any)  
joystick or keyboard  
Price £1.95

In this fast-moving, all action arcade game your job is to diffuse bombs which appear somewhere on the grid of traps - hence name Grid Trap.

You can control your man by keyboard or joystick; as you move the traps disappear, and you get 10 points for each trap you walk on, which gives good high scores. Each bomb has a 60-second fuse and if you don't reach it in time you lose a life.



But the game is not as simple as that, there are mines scattered all over the grid which explode if you step on them, and also there's the boot which stomps around the grid

- if it happens to kick you lose a life. For extra points you can collect flags which lay about the grid. Once you have diffused five bombs you go on to the next screen which has one more boot.

The graphics and the sound are good with well-defined 3D box traps and skull and crossbones representing the mines. The sound is good, too, with a little tune being played as you go about your dangerous job.

An enjoyable game that anyone can play; not a patch on Gridrunner, though.

Livewire

**PRESENTATION:**   
**SKILL LEVEL:**   
**INTEREST:**   
**VALUE FOR MONEY:**

**PUZZLE PACK**  
VIC 20 (any)  
Keyboard only  
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Six tests of skill and perspicacity, entertaining enough for a rainy afternoon.



Afternoon - could also come in handy for those who wish to put something "seemable" on the screen once in a while.

You are presented with GRENDS (select a falling shape into a matching landing zone), KNIGHT'S MOVE (land on every square on a chess board); GRAPHIC TWISTER (connect three shapes to match an original); RAINBOWS (complete a mathematical sequence); SLIDE PUZZLE (like the puzzle given away in hamburger joints); DIGITS (a number-eater teaser).

The graphics are low-res, straight from the standard character set in ROM, and similar programs could be easily typed in from various listings. But if you

want them here and now, get your money ready.

LS

Sunlock

Presentation: ■■■  
Skill level: ■■■■  
Interest: ■■■■■  
Value for money: ■■■

**MINI MADNESS**  
Vic-20 (unexpanded)  
Cartridge  
Joystick or keyboard  
Price £8.95

If you are into collecting boring, frustrating games, you're in luck — here comes another one! Ignore the user, that only makes it look interesting. Basically there are some old abandoned mine shafts containing bags of gold (very difficult to see), treasure chests and the obligatory lost explorer (female, of course). By using the Wacky Walker style idea you can journey through the labyrinths and recover the goods thus gaining points to graduate to the next level of play.

As the combined weight of yourself plus a treasure chest is too much for the lifts, you are compelled to use a different route to your cargo — often collecting, pushing and shoving from shaft to shaft many times before the coveted points are in the bag. Just right for the odd dull half hour sit? The monotonous, insistent songs might drive you round the bend; and don't look to the purple mutants for diversion, for they are virtually shapeless — no inspiration there. Fearing that the falling rocks on level four might make for compulsive play, I switched off. Surely a waste of a cartridge.

LS

Creative Sparks

Presentation: ■■■  
Skill level: ■■■■  
Interest: ■■■■■  
Value for money: ■■■

**MUTANT HERD**  
Vic-20 (unexpanded)  
Cartridge  
Joystick or keyboard  
Price £8.95

A while ago I was casting covetous glances at that cartridge priced at £20 at half the price it's a must.

Mindboggling monstrosities are pouring out from their burrows and heading pell-mell towards a throb-bog generator. They want to march into the walls costing you a

life if all the walls are consumed. Blast 'em? Oh, you don't have a laser! Instead you will have to become adept at manipulating horizontal and vertical bars in order to shove them off the screen. Use your cursor to guide one of your purple mutant hummers down one of their tunnels and flip immediately to screen two. Strangely he's turned blue, but no matter when he turns down the ladder, dodging into side chambers to avoid falling rocks and place a bomb near the queen mutant rip back to the surface and detonate. You're back to screen one but with only three barrows to worry about instead of four. Unfortunately the bars have developed gaps so the task doesn't get any easier. To move up a level naturally all the tunnels need slimes again.

Considering the mutants have to be small, the graphics are good while the sonics should motivate you. Different, I like it!

LS

Creative Sparks

Presentation: ■■■■■  
Skill level: ■■■■  
Interest: ■■■■■  
Value for money: ■■■■■



**SUBMARINE COMMANDER**  
Vic-20 (+ 16K)  
Joystick or keyboard  
Price £8.95

This was originally in cartridge form but is now available on tape at a bargain (real bargain!) price. Although the artist's impression is a trifle optimistic, the program does make good use of the Vic's all-round capabilities in sound and vision.

Take your time to leave the ropes then stalk the enemy com-

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are of the type we have all come to take for granted but would miss if absent.

Sunlock

Presentation:	***
Skill level:	***
Interest:	***
Value for money:	***

### SCORPION

Vic-20

Joystick or keyboard  
Price £7.95

If I had a fiver for every version of Centipede I've seen... There are cacti instead of fungi, and cactus spores replace bear; but the spider remains — and a bonus lizard is thrown in for good measure. Elimination of a string of red scorpions merely summons up a replacement along with another batch of cacti, both with altered colours.

BETWEEN THE POISONOUS CACTI AND BEARY SCORPIONS TO SURVIVE



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Each version of Centipede has attractions and minor differences, an almost bewildering selection, in fact, and I can't imagine any shop giving a demo of all they might stock. If you like the scenario this version should not disappoint you. But be warned — sooner or later it's always possible to find another variant that may appeal.

Sunlock

Presentation:	***
Skill level:	***
Interest:	***
Value for money:	***



### TRIAD

Vic-20 (unexpanded)  
Joystick or keyboard  
Price £7.95

Fair better than the dismal Centipede and just acceptable as Galaxian — though the animation is rather jerky. Red, purple and blue fighters and two yellow mother ships peel off from the formation to provide a contest, the tail end survivors are especially difficult to mop up. Action and sounds both pass muster, but I'm afraid the 64 versions of this arcade classic have spoilt me.

Still, until another software house is able to prove otherwise, this would seem to be the one to have on a Vic. Serious space bantlers should investigate further.

Sunlock

Presentation:	**
Skill level:	***
Interest:	***
Value for money:	***

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Copter Run

**TM** programs is really two skills as you primarily use them in piloting a helicopter. You are tested. Only when you've succeeded in steering that helicopter through a narrow cavern and destroyed as many asteroids as you can, do you get to fly the rocket ship.

Shooting asteroids gives you more points but decreases your life span. It's displayed as a percentage of the screen with your total score below it. So move as fast as you can to destroy the asteroids. The score increases as you destroy them.

When you reach the end, you'll come out into the nearby rock wall which you then steer through another onslaught of asteroids. If you crash somewhere along the way, a success message displays your points total and the distance travelled - a nice touch.

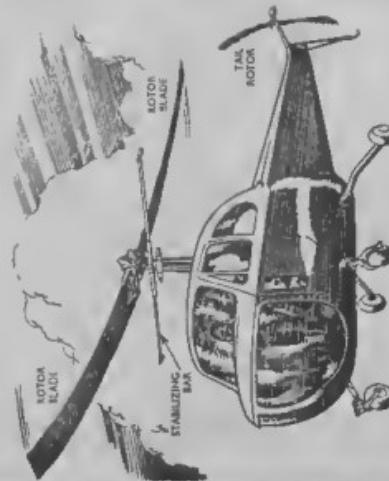
The camera builds up at the right side of the screen and scrolls (sometimes vertically) across to the left. So your helicopter/rocket doesn't stay right there; you use the joystick, namely to maneuver vertically and left, or counter clockwise to rotate the aircraft.

By Alexander Shapoval

ViC-20 with 3K expansion and joystick

When you reach the end, your cruiser lands and a tiny man rushes out and a nearby rockwall which you then soar through another onslaught of asteroids. If you crash somewhere along the way, a sweet message displays your points total and the distance travelled - a mere touch.

The camera builds up at the right side of the screen and scrolls (seemingly vertically) across to the left. So your planet really does fly straight really there, yes like the joystick, merely by instinct and fun, of course.



The helicopter can take off and land vertically and hover in the air.

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720 IF BURNER-4100-1-32 PINE L-32 PINE L-32 PINE L-32

Victims

# How to type in Victuals

## How we reproduce listings

We usually put our listings for Victuals and other programs through a code conversion program that replaces the hieroglyphic Commodore colour and screen control symbols with a more meaningful set of commands.

When you see...	It means...	And you...
[CUP]	cursor up	press the 'cursor up' key (shifted)
[CUD]	cursor down	press the 'cursor down' key
[CUL]	cursor left	press the 'cursor left' key (shifted)
[CUR]	cursor right	press the 'cursor right' key
[BOM]	cursor to the top left-hand corner	press the HOME key
[CLR]	clear	press the CLR key (shifted)
[INS]	insert	press the INSert key (shifted)
[BLK]	change to black	press the BLK key (CTRL and 1)
[WHT]	change to white	press the WHT key (CTRL and 2)
[RED]	change to red	press the RED key (CTRL and 3)
[CYN]	change to cyan	press the CYN key (CTRL and 4)
[PUR]	change to purple	press the PUR key (CTRL and 5)
[GRN]	change to green	press the GRN key (CTRL and 6)
[BLU]	change to blue	press the BLU key (CTRL and 7)
[YEL]	change to yellow	press the YEL key (CTRL and 8)
[RVS]	reverse on	press the RVS ON key (CTRL and 9)
[RVO]	reverse off	press the RVS OFF key (CTRL and 0)
[SPC]	space	press the space bar, repeat the specified number of times

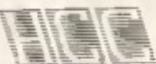
We have two methods of presenting listings. When we can, we run them through a converter program that replaces the hieroglyphic control codes with more meaningful symbols.

These listings we generally run out on a letter-quality printer though conventional graphics can't be handled on a daisywheel. So some listings are done on a Commodore printer in which case you may see the standard control codes.

CLP	...	L	REVERSED HEART
WHT	...	W	REVERSED %
RVS ON	...	R	REVERSED R
RVS OFF	...	G	REVERSED underscore
CUR UP	...	B	REVERSED SHIFTED *
CUR DOWN	...	D	REVERSED SHIFTED *
CUR LEFT	...	H	REVERSED G
CUR RIGHT	...	I	REVERSED UPWARD BAR - SHIFTED K
CLR	...	J	REVERSED LEFT TORSO BRACKET
RET NULCR TU	...	K	REVERSED SHIFTED P
BLACK	...	M	REVERSED E
WHITE	...	N	REVERSED S
RED	...	P	REVERSED COMMODORE-SHIFTED *
CYAN	...	Q	REVERSED COMMODORE-SHIFTED *
PURPLE	...	S	REVERSED UP HORN
GREEN	...	T	REVERSED LEFT HORN
BLUE	...	U	REVERSED PT SIGN
YELLOW	...	V	REVERSED PT SIGN
SYMBOL To LISTDR	...	F1	REVERSED F1
F1	...	F2	REVERSED F2
F2	...	F3	REVERSED F3
F3	...	F4	REVERSED F4
F4	...	F5	REVERSED F5

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# Two more spreadsheets:

## Calculation from Scandinavia

by Ken Ryder

CalcResult and Easy CalcResult are two new software packages from Sweden. Both are moderately priced 64k word processors with spreadsheet facilities built in.

Hard disk previously distributed in two separate sheet packing function in Nebula. Minimising the cost of the complete system per disk own UK £29.95 for disk and £19.95 in the box.

**CalcResult** disk £29.95 with a price reduction of £10.00 for the disk or £10.00 off up to 10 pages. 15 sheets of hard disk 16 columns x 256 rows. It can draw making use of built-in graphics and font.

**Easy CalcResult** cartridge £29.95 with a single sheet of 16x128 bytes. It is £10.00 off the price at £4.95.

### Easy CalcResult

Easy CalcResult is a relatively limited but still pretty powerful堤子 that can do most of the Big Brother's calculation - its files can also be used by full CalcResult.

Each of the 63 columns in the Easy Calc sheet is identified by characters in the range A..ZK and each row in the range 1..256. Thus the co-ordinate D64 identifies a cell in the fourth column and 64th row.

Formulas are written in basic, using variables and constants, where the cell co-ordinates represent a variable name, e.g. E16 D3 I42 is entered in the cell E16, then whenever E16 is entered in a formula throughout the sheet it will be equivalent to D3 I42. Not only that, but if a new value is entered into E16, all the values and formulas dependent upon it are automatically recalculated.

### Recalculation

Recalculation of the sheet can be column-by-column or row-by-row. The default is column-by-column, in other words Easy Calc calculates the new value of A1, A2, A3, A224 then B1, B2 etc.

So if A3 depends upon C1 and the value of C1 changes after A1

has been calculated the value of A3 will be wrong. This can be avoided by careful layout of the sheet or it can be rectified by forcing several recalculations.

The recalculations process can be switched off so that several new values can be entered on to the sheet before recalculating. This is useful as the act of calculation slows down data entry.

Easy Calc uses all the normal mathematical functions except the trigonometrical ones eg SIN COS etc. In addition several business-oriented commands can be included in formulas (table 1). The 64 relational operators i.e. AND, OR, etc can be used within the IF THEN ELSE function, particularly useful where a value to be calculated varies with the number of items, e.g. discounts or prices.

### The display

By default, only four columns and 21 rows of spreadsheet are displayed on the screen, which can be scrolled vertically and horizontally over the sheet using the usual cursor control keys. There is also a GOTO command which jumps the cursor to any co-ordinate on the sheet.

The column-width defaults to eight variable characters, although it may be changed to

any value between 6-18 to bring more of fewer columns up to the screen.

Any labels longer than the maximum column width are truncated on the screen, and large values are displayed as exponents, but retain their true value in calculations. The format of each individual cell may be altered to integer or two decimal places, with left or right justification.

Any column can be used as a title column, fixing its position and width independently from the rest of the sheet (figure 1). If the screen is scrolled horizontally over the sheet the title column remains fixed in the left-hand side, but it scrolls vertically with the sheet.

This feature is useful for fixing the contents of one column in the left hand side of the screen, e.g. taking for January while the figures for other months are scrolled across for comparison. Unfortunately the top line cannot be fixed to display column headings permanently.

The contents of rows and columns may be replicated (copied) to other areas of the sheet and the variables used within the formulae may be absolute i.e. equal to the original value, or relative to the new position. A whole matrix of rows and columns can also be copied if desired. Rows or columns may be inserted or deleted as required.

Editing the contents of a cell is simplicity itself. The F2 key displays the contents of the cell under the current cursor position in the top left hand corner of the screen. The label, value & formula can then be edited using the usual Commodore insert and delete keys.

F1 is the key to everything giving access to a menu of all the major Easy Calc commands and functions and as the gateway to the others, so if in doubt push F1.

### Output

The contents of the whole sheet can of course be saved to tape or disk for future reference. Specific parts of the sheet can

be saved. Even to tape the process only takes nine minutes which is fast enough for most applications.

Printed output is extremely versatile, though parallel printers are not supported. There are three options: a screen dump, i.e. everything including the row and column identifiers, but excluding the first three command lines of the sheet, a printout of all or part of the sheet, or formatted printout. The last two allow the number of rows to be specified together with the names of the columns to be included and the identifiers are not printed.

In the latter, the width of each individual column can be set and the column order can be altered.

It is also possible to save data from the spreadsheet as a histogram (figure 2) on the screen, which can then be dumped to the printer. The colour of each bar can be set to one of the 16 available and up to 16 consecutive values in any row or column can be included on the chart. The axes are automatically scaled. The top and side of the horizontal axis are user definable. Certainly impressive stuff!

### Documentation

The documentation consists of a gloriously 100 page A5 booklet. It is divided into three parts, the first of which introduces the purpose of the cartridge and the special function keys it gives the keyboard.

Part two contains four lessons which gradually take the user from first principles up to the most sophisticated functions of the spreadsheet. The examples are interspersed with colour screen photographs so you know exactly what to expect. All the commands appear in bold print to avoid confusion.

The final part is an extensive summary of the commands explained in previous lessons. A brief appendix containing error messages and some sample sheets for notes completes the documentation.

Considering the product is Swedish and must have been



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translated, the English and spelling is good. I found only two insignificant mistakes. The style is 'user friendly' and will have even the most inexperienced producing useful sheets within a few hours.

### Conclusions

Easy CalcResult lives up to its name, it is genuinely easy to use! The commands and mathematical format are so similar to Basic that learning to use the sheet is relatively painless, assuming you are familiar with the language. It also makes good and familiar use of the Commodore editing keys.

At £45 it is less than half the price of its big 3D brother CalcResult but maintains many of its advanced features. All that is needed to use the spreadsheet is a 64 and cassette. A disk will obviously speed things up, and a 1515/1525, 1530 or 1536 printer is required for hard copy. Easy Calc also lacks the ability to add or subtract (merge) several sheets.

Easy CalcResult is an excellent product, offering the home/small business user a relatively inexpensive but sophisticated spreadsheet for the family budget or business account.

### CalcResult

CalcResult incorporates all the features of Easy Calc, and more!

Instead of referring to the manual a set of HELP screens can be called from disk, giving brief but concise details of the commands. These screens are very cosmopolitan, offering English, German, French, Italian, Dutch, Swedish and something called Swenski (Finnish? - Ed.)

The border, background and foreground colours may be set individually to any available on the 34. The maths functions also include the normal trigonometrical expressions.

### Easier disks

Disk-handling is much improved over Easy Calc. A listing of the disk directory can be displayed on the screen without disturbing the sheet in memory. Data may be formatted, and a backup copy can be made from drive 0 to 1 if you are affluent enough to own two drives. Individual disk files can be deleted as necessary.

The sheet data can be saved in

### CalcResult Commands

The CalcResult commands are shown here together with a short explanation of each command and function as they are shown on the help screens - press F5 when in any command for the screen

#### KEY

CR = CalcResult only  
ECR = Easy CalcResult only

CR, ECR = available in both CalcResult and Easy CalcResult

### System Commands

<b>E:Work</b>	Cancel contents of cell under cursor - CR, ECR
<b>D:Disk command</b>	For disk communications or user register - CR
<b>F:Disk command</b>	For screen and printer - CR, ECR
<b>F:Format command</b>	Individual cell - CR, ECR
<b>G:Global command</b>	Global format and column width - CR, ECR
<b>L:Line</b>	The split-screen and window - CR, ECR
<b>O:Order</b>	Of resolution - CR, ECR
<b>Q:Quit</b>	Out program - CR
<b>R:Recalculate</b>	Automatic or manual - CR, ECR
<b>S:</b>	Automatic repetition of characters at cell under cursor - CR, ECR
<b>T:Tape</b>	Disk or tape communication - ECR

### Disk Commands

<b>B:Backup</b>	Drive 0 to drive 1
<b>C:Catalogue</b>	Directory of drive 1
<b>D:Diff file</b>	For saving and loading diff files
<b>E:Erase</b>	Scratches file on drive 1
<b>I:Initialise</b>	Drives 0 and 1
<b>L:Load</b>	File to work area
<b>N:New</b>	Disk it formatted in drive 1
<b>S:Save</b>	Work area to drive 1
<b>U:User Register</b>	Containing language for help screens type of printer and paper format

### Edit Commands

<b>C:Copy</b>	Data area to another area - CR, ECR
<b>D:Delete</b>	Row or column - CR, ECR
<b>G:Graphic</b>	Histogram (CR) barchart (ECR)
<b>I:Insert</b>	Row or column - CR, ECR
<b>M:Move</b>	Data area to another area - CR, ECR
<b>P:Print</b>	Worksheet or user-defined format - CR, ECR
<b>R:Replicate</b>	Data area to other areas - CR, ECR
<b>S:Split</b>	Screen (hor/ver) - CR
<b>T:Title</b>	Protect a file in the left column - CR, ECR
<b>W:Window</b>	Insert window - CR

### Format Commands

<b>C:Colour</b>	Select colour - CR, ECR
<b>G:Global Cell</b>	Select global format - CR, ECR
<b>G:Global Global</b>	Select normal format - CR, ECR
<b>M:Maximum</b>	Select maximum precision display mode - CR, ECR
<b>M:Integer</b>	Select integer display mode - CR, ECR
<b>S:</b>	Select 2 decimal display mode - CR, ECR
<b>L:left</b>	Sets contents of left - CR, ECR
<b>R:right</b>	Sets contents of right - CR, ECR
<b>T:</b>	Replace integer number with corresponding number of stars always left adjusted - CR

two formats, normal CalcResult format and Data Interchange Format (DIF) which enables the data to be interpreted by other programs using DIF, and it also allows CalcResult to read DIF files created by other programs. This makes for a very flexible package. Up to 32 sheets can be created like consecutive pages in a book. The first page format is created and copied on to the subsequent pages. At first all the pages are identical except for page numbers. Each individual page can then be edited to reflect its purpose i.e. the department or month it applies to.

### The Display

Two pages can reside in internal RAM at one time and either one can be viewed on the screen.

Alternatively the screen may be split horizontally or vertically, with different pages shown in different halves, each half being scrolled independently to compare values and results, or both screens can be synchronised to scroll together.

In addition a rectangular window can be created on the screen displaying the contents of another page. This window may also be split horizontally or vertically. By combining split screens and split windows it is possible to display the contents of four pages simultaneously.

Unlike Easy Calc, pages can be added together. There are two alternatives, the whole page including LABELS, VALUES and FORMULAE can be added, or LABELS, VALUES and VALUES calculated by FORMULAE are added.

### Manipulating worksheets

How do you add LABELS and FORMULAE, you ask? Well, the contents of the first page are moved to the SUM page 32. If the next page contains a LABEL at a co-ordinate which is empty on page 32, then the LABEL is inserted. If a LABEL does exist, the LABELS are compared and the differences reported after the summation; the first label remaining unchanged. Formulas are treated in the same way.

Pages cannot be subtracted directly; unless the page to be subtracted must be negated and then added. Individual pages can be renumbered, deleted or cleared.

To make the most of CalcResult, two disk drives are

required. 0 and 1, disk 0 holding the program and work area, disk 1 holding the page data files. Two full pages can be held in the 64K internal memory, with one in the disks work area. The other pages are drawn from the data disk as they are required. With a single disk drive the program, work area and data are all stored on the same disk, requiring more disk changes for multiple pages.

#### Documentation

Surprisingly, in comparison with

Command	Function
MAX0	Finds the maximum, minimum value of a row, column or matrix
MIN0	Counts the number of fields containing a valid value or formula within a row, column or matrix
COUNT	Calculates the average of an area
MEAN	Sums the contents of a row, column or matrix
SUM	Calculates the standard deviation of an area
STDDEV	Returns the absolute value of a number just like the BASIC equivalent
ABS	Convert a value into a percentage
%	Calculates the next present value
HPIV	

the Easy Calc manual there are numerous spelling and English mistakes. The additional facilities are not particularly well

explained, and the way in which internal memory, the work file and data files operate is rather confusing.

#### Conclusions

CalcResult is an extremely sophisticated 3D spreadsheet, suitable for small-to-medium-sized businesses. It is possibly too advanced for use in the average home, but Easy Calc fills that gap. Its main failings are the manual and its inability to support non-standard printers. With persistence it is possible to interpret the manual and master the impressive features of this advanced product.

PRODUCT	EASYCALC	CALCREST
Max No. of Rows	63	63
Max No. of Cols	256	256
No. of Cells	16002	32px X 16002
<b>Function</b>		
Min	*****	*****
Count	*****	*****
Max	*****	*****
Avg	*****	*****
Sum	*****	*****
STDEV	*****	*****
ABS	*****	*****
AVG	*****	*****
Conditional Test/Sum	*****	*****
Max-Min Function	*****	*****
<b>Commands</b>		
Find Cells	*****	*****
Sort Selection	*****	*****
Copy	*****	*****
Paste	*****	*****
Insert	*****	*****
Move	*****	*****
Redo	*****	*****
Undo	*****	*****
Format	*****	*****
Clear	*****	*****
<b>Formatting</b>		
Colour	***	*****
Cell Format	*****	****
Global Format	****	****
Justification	*****	*****
Column Width	*****	*****
<b>Output</b>		
Graphics	*****	*****
Disk	*	*****
Tape	*****	N/A
Disk Commands	*	*****
Printout	*****	*****
Split Screen	*	*****
Window	N/A	*****

Other Functions		
Function Key Use	****	*****
Find	N/A	N/A
Page Facilities	N/A	***
Documentation	****	***
Presentation	*****	*****
<b>Overall Total</b>		
Price	\$45.00	\$99.00
Value for Money	3.1	1.8
<b>Format</b>		
Cartridge		Disk plus dongle
<b>Supplier</b>		
Handic		Baudic
Index House		Index House
Acorn		Acorn
Berkshire		Berkshire
SL5 7EU		SL5 7EU
<b>To compare</b>		
<b>ABRACALC</b>		
- price		\$27.00 (disk version)
- value for money		2.4
<b>BUSICALC 2</b>		
- price		\$18.61 (disk version)
- value for money		1.8

Page commands (CR only)	
A>Add	Page, checking that labels and formulae match
C Copy	One page to another
D>Delete	Page from work area
E>Erase	Work area
G:Get	Page from work area
H:Replace	Changes signs (+ and -) in one page
P:Put	2nd Page area to work
R:Reshape	Page
+:	Add pages values and formulae only

*Printer*

# Cheap correspondence quality:

## the Juki 6100 daisywheel printer reviewed

by  
FRED  
REID

The Juki 6100 has to be just about the lowest-priced daisywheel printer around at the moment – over £100 cheaper than the Smith Corona TPI – and has been since its introduction in May 1983. Before that, you could easily have paid out twice as much for little or nothing more.

As you're probably aware, printer prices vary a fair bit from shop to shop. But I've seen this one advertised at £375 (inc VAT) even though the maker's recommended price is £459! It pays to shop around a bit ...

As printers go, this one is fairly large (it measures 546x380x160mm and weighs in at 14kg); but so then it takes paper up to 13-line mode, so the printer itself has to be big. It still manages to look rather sleek.

Paper setting is ridiculously easy (even one-handed), and the friction feed keeps continuous paper under tight control. It's intended, of course, for single sheets like headed notepaper rather than continuous stationery, although a tractor feed is available for an extra £99.

A word or two on the manual: it's long and fairly comprehensive, but still suffers from poor translation from the Japanese. (Most of us are well used to that by now!) It adequately covers setting the ten DIP switches (located quite accessibly just inside the top cover) and gives detailed descriptions of the control codes and the 47 ESC (escape) codes.

The DIP switches allow you to set automatic line feed, ungression level, buffer mode, character set, continuous or single sheet stationary, form length and line spacing.

### Features

If I were to describe all the features of this machine I would be here all night; it's a pretty full specification – see the panel – but here are some of the more unusual characteristics.

The Juki uses standard Triumph-Adler print wheels and IBM ribbons, both of which are easily bought and fitted (not much discounting on prices, though, you'll get the best deal from an office supplies shop rather than a high street stationer).

The print head is driven by a linear motor to give good positional accuracy, and that also simplifies the internal mechanism, no problems here at all.

The front panel has three flat 'membrane' switches for form feed, pause and reset. The spacing selector switch allows selection of 10, 12, or 15 characters per inch, or proportional spacing (means that an 'I' takes up less room than an 'M' on the paper). If you switch on while pressing the form feed button, the juki does a self-test, checking its internal RAM and printing out its entire character set until switched off again.

The printer comes as standard with a parallel (Commodore) interface, with optional RS232 (serial). We can fit it from a variety of printer adapters without any trouble. Commodore being preferable of course – much easier to run from Commodore programs.

Many functions can be programmed from the host computer – including the number of lines per page, horizontal and vertical tabs, line feed (by  $\frac{1}{10}$  increments), column spacing (by  $\frac{1}{10}$  increments), plus a host of word processing functions like proportional spacing convert, offset selection, underlining and emboldening (even underlined and emboldened text at the same time). All this for under £400? I still find it hard to believe!

### On the other hand ...

Minus points – in operation it is definitely on the slow side. It's rated at 17 characters per second, but it is bidirectional (the print head doesn't have to return to the left side before the next line is printed). Also, to help the printer work at a constant speed, it has a 2KB buffer to increase throughput.

Despite plenty of sound proofing it's a little noisy. But then there's a lot of any daisywheel



printer because of the mechanics involved and the sheer force needed to thump a solid letter on a daisywheel stalk against the ribbon and on to the paper.

All this puts into quibbling when set against the thing's controllability and print quality, and its handling of graphics.

### Pretty pictures

Graphics can be achieved by making use of the 6100's positional control. Move the print head, or move the paper, and print a dot (or any other character including a couple of right angles and straight lines), enabling plotting, drawing, or

letterheads to be produced. I found it easy to program the various characters into variables and use "Print".

The daisywheel supplied contains the various special symbols used in American and other European texts, including '°', '£' and '€'.

So, to sum up: there's nothing cheap about the construction of this machine, it looks set to stand up to the rigours of office life, and would certainly not be out of place in the home. It's up to you whether you spend the extra for more features, or go for a great little machine at an easy price. But, if you're still in doubt, try one for yourself!

Under review	Juki 6100
Description	Daisywheel printer
Supplier	Micro Peripherals Ltd 61 New Market Square Basingstoke Hants 0256 3232
Telephone	(and other sources)
Summary	Ac.
Price	£459 - £375 (shop around)

## Specification

### PRINTING CHARACTERISTICS

Print Rate	20 cps (Av.15 cps Shannon Test)
Printing system	Daisywheel
No. of printing characters	100 characters
Horizontal feed pitch	1/10" mm
Printing sizes	10, 12, 15 cps + Proportional (Switchable)
No. of characters per line:	
10 cps	110 characters
12 cps	132 characters
15 cps	165 characters
PS Mode	82 220 characters
Carriage return time	1000 ms max over 11"
Spacing time	50 ms max over 11"
Interline distance	1/48" (1/96" possible via ESC sequence)
Line feed time	5N + 20 (settling time) milliseconds (N = Line spacing (inches)) / 1/96" 2.08"/sec + 20 ms (settling time)
Line feed speed	

### PAPER HANDLING

Paper feeding system	Friction feed bi-directional
Options	Tractor feed and Cut sheet feeder
No. of copies	Original + 3 copies
Printing line	11" max (print area 13")
Impression control	Automatic in 12 steps by character size and 2 steps with dither switch
Feed knob	Right and left knobs. Right knob has variable setting for slight adjustment.

### PROTOCOLS

Disable

### INTERFACE

Standard	Centronics Parallel
Optional	RS232C Serial (300-2400 baud) 20 ma Current loop

### SUPER BUFFER

2K byte standard

### REBON

Cartridge (IBM 82 compatible)

### RIBON LIFE

Single strike film	160,000 characters
Multi strike film	480,000 characters

### NOISE LEVEL

Less than 62dB (at 1 metre)

### MTBF

2500 hours at 25% duty

### POWER REQUIREMENT

100VA 220/240V 50Hz

### POWER CONSUMPTION

Idle - less than 30W Running - average 50 W

### ENVIRONMENTAL

Ambient temperature	5 - 35°C (running) -40 - 55°C (storage-packed condition)
Relative humidity	30 - 85% (running) 5 - 90% (storage-packed condition)

### WEIGHT

Less than 12.5 Kg (28lbs)

### DIMENSIONS

520mm W x 454mm D x 151mm H  
20.5" W x 17.9" D x 5.9" H (Knob dimension is included in width)

## Control Codes

ACK	Acknowledge - transmitted when buffer encounters ETX code	ESC FF [n]	Set n lines per page to [n]
BEL	Beep - sends all available buzzer alarm for 0.5 sec	ESC -	Set vertical tab stop at current position
BS	Backspace - print position normal 1/60 graphic mode	ESC CR P	Inside remote site
CR	Carriage Return	ESC RS [n]	Set line spacing index to [n-1]
DC 1	Print set in select condition - data can be transmitted	ESC US [n]	Set column spacing index to [n-1]
DC 3	Printer set in de select condition - cannot receive data	ESC D	Clear top and bottom margins
DEL	Print - ignored - use ESC sequence to print corresponding character	ESC U	Perform negative half line feed
ETA	End of Text (serial interface) - transmitted at end of a date string	ESC T	Perform full line feed
ECS	Escape - special features provided by ESC + character codes	ESC Y	Set lower page margin at current position
FF	Form Feed - sets TOP or top margin on next page	ESC Z	Print the wheel character under ASCII code SY1
HT	Horizontal Tab - moves paper to next set HT stop	ESC H	Print the wheel character under ASCII code SY2
LF	Feed - moves paper one line 1/4" in graphic mode	ESC I	Print the wheel character under ASCII code SY3
NUL	Null - ignored in all modes - can use as space code	ESC J	Print the wheel character under ASCII code SY5
SP	Space - moves carriage one print position	ESC X	Print the wheel character under ASCII code SY8
VT	Vertical Tab - moves paper to next set VT stop	ESC V	Enable auto backward printing
ESC 1	Set horizontal tab stop at current print position	ESC C	Disable auto backward printing
ESC 2	Clear all horizontal and vertical tabs	ESC S	Set column spacing index to value defined by SPACING switch
ESC 3	Graphics mode ON (cleared by CRI)	ESC P	Proportional spacing ON (cleared by ESC S)
ESC 4	Graphics mode OFF	ESC Q	Proportional spacing OFF
ESC 5	Forward print mode ON	ESC DC1[n]	Offset selection - created by CRI
ESC 6	Backward print mode ON (cleared by CRI)	ESC E	Auto underline ON
ESC 7	Print suppression ON (cleared by CRI)	ESC R	Auto underline OFF
ESC 8	Clear horizontal TAB of current position	ESC O	Both Print On (cleared by CRI)
ESC 9	Set left margin	ESC W	Shadow Print On (cleared by CRI)
ESC B	Set right margin	ESC S	Bold/Shadow Print OFF
ESC RT [n]	Initialize absolute horizontal tab to print position [n]	ESC N	Set carriage return time
ESC LF	Perform negative line feed	ESC M	Clear carriage return time
ESC VT [n]	Initialize absolute vertical tab to one [n]	ESC B5	Barcode ON 1/120
		ESC X	Cancel all WP modes except Proportional Space
		ESC SUB R	Remote entry reset
		ESC SUB X	Inhibit the printer
		ESC SUB 1	Request status byte

Specifications are subject to change without notice



**Micro  
Peripherals Ltd**

'THE POWER BEHIND THE PRINTED WORD'

# COMMODORE user

A PARADOX PUBLICATION

Welcome to DEALS FOR READERS, a collection of Special Offers from Commodore User Magazine.

This Catalogue offers you excellent deals on Vic and 64 products. Some of them, like the discovers and the Vircards tapes, we have produced ourselves. The others are things that we regard as Good Ideas and Good Value; mostly items we reviewed in Commodore User before we decided to sell them. On most of them we have fixed up discounts for readers (while we aren't allowed to sell books at cut prices we can include P&P in our price).

If you want to take up any of the offers, just use the Order Form on the back page. And take a look through the Catalogue even if you don't want to buy now - we'd like to know what you might be interested in seeing in future DEALS FOR READERS catalogues - let us know in the space provided on the Order Form.

## DESIGN YOUR OWN

### VIC SCREENS

### CYBERGRAM

£4.20

Brilliant idea, though it's simple really. The Cybergram Designs Vic-20 Graphics Aid Pack is a set of overlays and printed sheets on which you can design screen displays. With them you can immediately see the POKE locations you need for display and colour, and you can use successive sheets to set up a specific 'storyboard' from which to organise and visualise the sequences in a graphics program.

Your pack includes planner sheets for the standard 22 x 22 screen and plaster sheets for 5023 x 1023 hires graphics using the Super Expander; you also get a set of handy character designer sheets that simplify the construction of your own shapes.

Very neat, very clever - and really useful too. We're glad we can offer the Graphics Aid Pack to you - and at a discount on the normal RRP of £4.50.

## Deals for Readers

### Video Splitters

Aerial and computer both on your TV!

This nifty little gadget plugs into the serial socket at the back of your Vic or 64, and it means you can have your Vic or 64 and the aerial attached at the same time.

No more boring fiddling around to change the plugs, no more unnecessary strain on the wiring!

£1.75

### Instant database for your 64

### INFOTAPE

Why buy lots of different data storage systems when just one will do? INFOTAPE 64 is a powerful yet easy to use database system for tape users, and stores up to 3,000 data items with you defining the number of fields per record. Totally flexible, and interactive in nature, with the user having command of what data is stored and how. And file characteristics may be changed after the file has been created. Powerful 19-function calculator is built-in (giving spreadsheet capability), batch processor can update or delete all or selected records. A full report generator is included to provide anything from a gummed label for a mail shot to 16-subject reports...

Normal price: £16.95

OUR PRICE £9.95



Special Offer: When you upgrade your system to use a disk drive, INFODISK will be able to retrieve your tape records - and your INFOTAPE order from us comes with a £2.00 off voucher against the disk version!

### A RECOMMENDED ASSEMBLER

for Vic or 64

Tape: £17.95  
Disk: £19.95

Our reviewer (June 1983 issue) concluded that Elmhurst's OSIRIS/64 assembler was "good value at the price." So we signed up to sell it.

Fast, comprehensive operation, good features and lots of them, full error reporting... what more could you ask of an assembler? Except maybe an editor package.

And - would you believe - it comes with FREDITOR a general-purpose text editor that can be used for any text (as a mini-word processor) and / or to create a source file for the assembler. Features save, move, erase, search, load and replace.



£3.99

### FALLING APART? ORDER FORM ON BACK PAGE

Our Commodore user binder holds 12 issues of the magazine (and Vic Computing bits too!) Dark blue with the magazine's name in gold, smart sturdy and sensible - the mag's are held in by strong elasticated ties, easier and neater than the kind of binder that has metal rods for the purpose. And compare our price with what other magazines charge you for binders!



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Commodore Outerwear shirts and sweatshirts are in good-quality cotton, ideal for late nights in front of the campfires or at the beach at Torremolinos or the lounge bar at the Pig and Whistle. Cobalt blue with the magazine's logo big and bold across the chest. State size when ordering; we have small, medium, large and extra large.

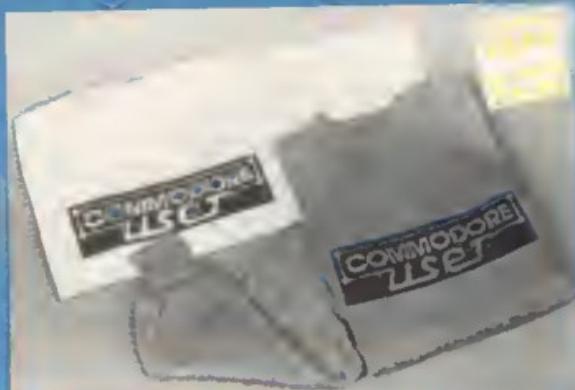
CARTRIDGES FOR THE 64

easier programming!

## **THE COMMODORE USER TOOLKIT** . for easier programs

for easier programs

Hybrid Non-volatile  
Memory



**PRICE: \$27.50 SPECIAL BARGAIN**

**OFFER** order the two at the same time

and save a fiver - £50 for the pair!

Cut out those SAVE/LOAD errors!

Read while erased from tape? Mucky keyboard? Clucky screen? Uh-oh! The tape heads can be frustrating, and who wants a sticky looking computer?

## The Complete Cleaning Kit

- Has the answer to all your questions
- big cleaner for the cassette deck
- a pack of special lint-free wiping cloths to use with
- aerosol can of anti-static foam cleaner to lift off grease and dirt
- ten anti-static dust repellent screen wipes
- a pack of lint-free cotton buds sticks for those hard to get at places (earls), to use with
- aerosol can of safe, residue free cleaning fluid
- four of the tape decks

What excuse can  
you have now?



**KEEP IT CLEAN**

**GET INSIDE  
THE 64**

**Commodore 64**  
—getting the  
most from it  
by Tim Onosko  
published by  
Prentice-Hall

7.25

Technical value for the beginner, especially at this price - 303 large-format paperback pages, a from the ground up all-purpose material, tutorial/reference for the 64. Concise and sensible clear presentation, well-written Appendices include substantial contributions from Guitinghoff on the 64's memory and excellent resources of sound and graphics.

If you want to have to use only one book to get  
out of your 64, buy this one!

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The prices below include VAT and postage and packing - but within the UK and Eire only. European and International orders - please add the amounts given opposite to the prices below. Expect delivery in 28 days. Contact us if you haven't had your order within that time. All orders subject to availability.

	European	International
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All tapes	£1.50	£1.50
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Binders	£2.00	£4.00

Write the number  
you require in the  
relevant boxes

- A VIC COMPUTING
- B CAPTAIN KILOBYTE
- C VICTIM
- D POKE 36879
- E UNEXPANDED VIC

T-SHIRTS					SWEAT SHIRTS					Grey £3.40					Grey £7.00				
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S	M	L	XL	XXL	S	M	L	XL	XXL	S	M	L	XL	XXL	S	M	L	XL	XXL

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£3.75 Blue

£7.50 Blue

VICWEAR TOTAL SWEATSHIRTS	: no <input type="checkbox"/> at £7.00
VICWEAR TOTAL TEE-SHIRTS	: no <input type="checkbox"/> at £3.40
COMMODORE USER TOTAL SWEATSHIRTS	: no <input type="checkbox"/> at £7.50
COMMODORE USER TOTAL TEE-SHIRTS	: no <input type="checkbox"/> at £3.75
VICTAPE ONE	: no <input type="checkbox"/> at £5.00
VICTAPE TWO	: no <input type="checkbox"/> at £5.00
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64: GETTING THE MOST FROM IT	: no <input type="checkbox"/> at £7.95
COMPUTER DUSTCOVERS	: no <input type="checkbox"/> at £2.50
CASSETTE DUSTCOVERS	: no <input type="checkbox"/> at £2.00
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	64 TAPE	: no <input type="checkbox"/> at £17.95
	64 DISK	: no <input type="checkbox"/> at £19.95
THE COMMODORE USER TOOLKIT CARTRIDGE	: no <input type="checkbox"/> at £27.50	
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GRAPHICS AID PACK	: no <input type="checkbox"/> at £4.20	
BINDERS	: no <input type="checkbox"/> at £3.95	
INFOTAPE CASSETTE	: no <input type="checkbox"/> at £9.95	

**GRAND TOTAL £**

NAME	* THIS IS YOUR DELIVERY LABEL - PLEASE PRINT CAREFULLY		
ADDRESS	TOTAL ENCLOSED:		
	cheques or postal orders should be made payable to COMMODORE USER. Or use Access		
	Access card no.		
	Date	Signature	

# **Suppress the surge**

by Albert van Aardt

It is late at night, and you've been working on that program for hours. You decide to SAVE it and carry on tomorrow. The weather has been very heavy, with lots of thunder. And then... a flash of lightning, and your SAVE goes dead in its tracks.

That, my dear friend, was the dreaded Power Surge which killed your disk. Most computers have some kind of surge suppression built in, but disk drives and tapes are a different matter all together. So what can you do about it?

Well, you can read on. This little project won't cover all extraneous electrical problems but it could help prevent too many shorts.

And what is this Power Surge? Well, as you probably know your equipment is set to work between 220 volts and 240 volts. If something like a bolt of lightning creates a 'surge' of extra electricity on the line, the voltage could for a split second soar up into many thousands

While your equipment might not burn out (although I know of cases where that has happened), delicate things might just hiccup slightly - enough to crash your game.

Surges can come from other sources as well — opening the fridge door, switching on a fluorescent light or the TV, starting the tumble drier. Remember that slight dip the lights took when someone switched on the electric drill? Well, that was a surge — but a negative one.

In other words, power surges can mean an increase in voltage but you could also get a decrease in voltage. (I have seen a 230 volt line registering 180 volts!)

Kill that surge

So how can we prevent these surges? Well, you could buy a little black box that is guaranteed to provide a 'clean' current, and you could pay £15 to £500 for it.

Of course the more costly of these boxes also provide a

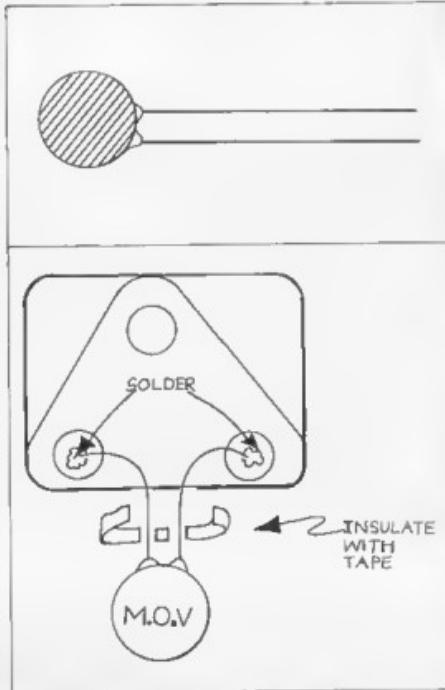
battery back-up, to give you power in case of a total power failure. But the cheaper ones don't. And anyhow, there's something else again - let's stick to sunsets.

I wasn't prepared to spend just as much money on surge protection as on my computer, so I asked around a bit. Believe me, you only loose a program once because of a power surge before you become worried about it! Or even worse - the data gets written away with those bits and rubbish bytes in between. Ever

tried to LOAD a program that has a control bit in the very first line?

It turned out that the Post Office also has the same problem - all that delicate equipment in the microwave towers, and all those famous thunderstorms, well, the two just won't mix. Maybe they spend millions every year on surge suppression? No?

No The answer is a simple little gadget that retails for less than a quid – a lot less (like 25p?) It is called a 'Metal Oxide Varistor', and looks something like this



Direct current generation

Just ask for a "Metal Oxide Varistor," Siemens model 310V-320K330 at your local electronics supply shop. You then solder this little critter across the live and neutral wires of your power supply, and close any open wires with insulation tape. (We don't want a nasty little shock when we pull the plug from the wall now, do we?)

I installed mine inside a double-adaptor, and therefore have two sources of 'clean' power. Took me about ten minutes, and I haven't had any &#8211; failures since! (And thanks to Keith Wickes for the leg work!)

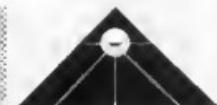
# Spalling chucker helbs oud

Vizaspell Review

by Chris Durham

Anyone who uses a wordprocessor will know that the problem still remains of trying to find all the 'speeling misteakes and tpying errors' before sending out a letter or document.

Fortunately there are a number of programs available to remove even this burden; we got Chris Durham to put one of them through its paces to see how useful it really is. Viza Software's Vizaspell is a companion piece to the Vizawrite word processor we reviewed in our February issue.



This is a spelling checker program, used in conjunction with the WP package Vizawrite. It comes on a disk (there is an option to obtain both Vizawrite and Vizaspell on the same disk) costs £57.95

For those of you who feel that is rather a lot just to correct a few spelling mistakes let me make one thing quite clear from the start: if you type more than about 2,000 words a week on a word processor, you'll find that a

spelling checker is one of the most useful programs you ever purchased

Vizaspell comes complete with a 30,000-word dictionary which you can add to as you go along if you wish - this is a great advantage

over those spelling checkers which require the user to build up the dictionary from scratch. Next, the program allows you to search for a word knowing only part of it. Thirdly, Vizaspell is called from the word processor, with no reloading of files to do and without exiting from the WP program - most of the larger-scale spelling checkers sold for the 16-bit business computers don't permit that.

#### Using the program

Vizaspell is very easy to use. The disk is inserted in the drive and the program is called from Vizawrite by pressing the CRM key with shifted RUN/STOP. The program then loads into memory without disturbing either the WP or the next.

It immediately runs an analysis of the text in memory at the time and it shows the total number of words, the number of unique words used, and the number of

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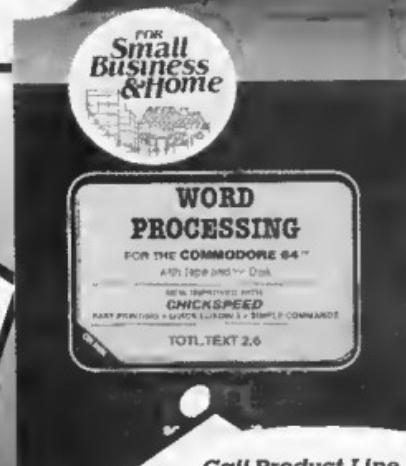
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sentences, paragraphs and pages.

You are also presented with a menu with a number of options; pressing F1 starts the spelling check phase. During this the words are shown in alphabetical order on the screen and a white bar indicates the current word being checked. If a word remains highlighted after being checked, it is not in the dictionary - so it's either incorrect or unknown to Vizaspell.

Once the document has been checked you can obtain a list of all unrecognised words so that you can check the spelling if needed before editing the document.

Actually correcting the document is simplicity itself. Typing CBM V (for Verify) starts a checking process which scans through the document and stops at each unrecognised word. You then have the option to Eds, Accept, Skip or Learn by typing the first letter of the required option.

Edit runs off the verify command - which means that, unlike the case with many such programs, you can edit as much text as you like, you are not limited to just the word it stopped on. To continue the check you type CBM V again.

**Accept** tells the program to recognise this word if it occurs again - in other words, not to stop at the next occurrence. **Skip** means ignore the word that time, but stops if it occurs again.

**Learn** stores the word for inclusion in the User Dictionary at the end of the check.

Once the check is complete, Vizaspell must be reloaded (using CBM RUN) if you require to save the learnt words. This merely involves selecting the relevant menu option with the function keys (ensuring that the write protect tab has been removed from the disk). The new words are held separately from the main dictionary, but can be combined by running one of the utility programs on the disk.

### Other facilities

There are a number of utilities on the Vizaspell disk, one of which allows you to combine the User dictionary with the main dictionary as already mentioned. This is necessary because the main dictionary is held in a condensed format while the user dictionary words are held in full with about a 200-word limit.

There is a utility to create a copy of the entire disk (except the copy program itself) or to copy the dictionaries to a second disk. This is very important to avoid losing all the dictionary should there be a disk error when updating the User dictionary.

### Limitations

Like all other programs of this type, Vizaspell is unable to find a typing or spelling error which is itself a valid word. If you type "there" when you meant "their", the check will blithely ignore it since both words appear in the dictionary.

Likewise it will ignore most errors involving numbers, typing 'of instead of 'or' '9' instead of 'is' will both fail to be spotted. That's a bit more of a deficiency.

If you consider that you would well have to find these mistakes yourself without the spelling checker, bear in mind that two-thirds of a check is better than no check at all. Until someone invents a program which checks whether what you have written makes sense (heaven forbid!!!) then you are still going to have to proof-read the document before sending it off. (Actually, there is a program called Grammatic on 16-bit Macs which claims to check your grammar though all it does is help you to avoid "wordy wagers" like "prior to" for "before". It has a section that picks out "sense" usages like "craftsman", too! - Ed.)

### Conclusions

Vizaspell is an extremely easy-to-use and useful utility program for anyone who uses the Vizawrite WP program. Although it cannot pick up every possible typing and spelling error, it can save a considerable amount of time when checking large documents. It is also usually more accurate than doing it by hand since it will spot many spelling errors you didn't even know were errors.

Whether the price makes it a good buy depends entirely on how much typing you do. But for anyone considering purchasing both the WP and spelling checker at the same time the combined Vizaspell software disk is definitely good value at a cost of only £99.00 for both.

Under review	Vizaspell
Supplier:	Viza Software
Address:	9 Mansion Row Brompton Gillingham Kent ME7 5SE
Summary:	Low-cost easy-to-use spelling checker good value for prolific typists
Price:	£62.85 (or £99 combined with Vizawrite)

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# Word processing Road test!

**Video Pak 80 and The Word - 80 columns and more!**

by Chris Durham.

now for the good news... into 64 cols the hematice am not you s r c for at w are t about the number of col scre u - i's now pos e to g t a full 80-col v x V P et

t g le v x! B fo p per I sho e layed oot e y fr the C M 64, w to v t

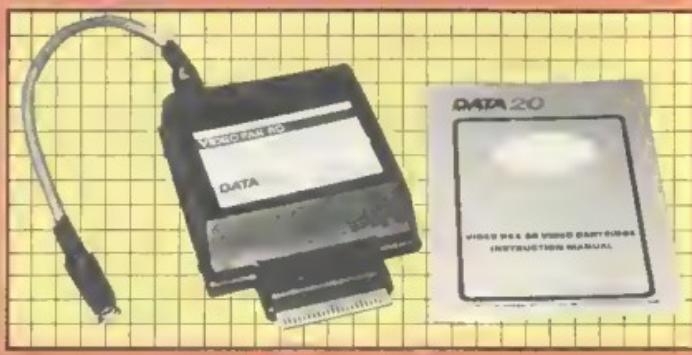


There are many ways of trying to overcome the limitations of a 40-column screen when writing software - notably for word processor programs, which really need a screen wide enough to approximate to a page of paper. Those options include horizontal scrolling, reformatting when printing and taking two lines on the screen to equal one on the page.

None of them is entirely satisfactory; however, and getting a system which gives a full 80 columns 'on-screen' is like a breath of fresh air after being in a room full of smokers. So, what can you do with it?

## What you get

As you can see from the photograph, the Video Pak 80 cartridge (from Data 80 in the States, sold in Britain by Impex) is a neat and fairly robust box which plugs into the cartridge port of the 64 (there is in fact a new version out now in an even beefier case, colour-matched to



the 64). A short video lead which plugs into the monitor output to enable the system to display the standard C64 screen when the cartridge is not activated. There are two five-pin DIN sockets in the rear of the cartridge, the first takes the other end of the video lead, the second is where you plug in your monitor.

And the first thing to note with this system is that you must use a monochrome monitor; it will not work with a standard TV. The output signal is not TV type UHF, and anyway few TVs would be capable of displaying 80 columns with any clarity.

Neither can the Video Pak really be used with the Commodore 1701 Colour Monitor. Its 40-column mode is fine, but 80 columns are very difficult to read - especially letters like 'm' and 'w'.

No, Video Pak is designed for a standard monochrome monitor, and on one of those the display is little short of excellent. I have a small 8-in monitor for using my 64 away from home, even on a

small screen like this, where the lower case letters are only 1 mm high; in 80-column mode the letters are clearly readable some two feet away (normal viewing distance). The only time the display breaks up slightly is when you are scrolling the text

## In use

Actually using the cartridge is easy. You can start in either 40- or 80-column mode by typing an appropriate SYS command, thereafter you can swap between modes using the function keys. It takes you from 40 to 80 if does the reverse.

Once in the required mode you can use the computer as normal for your own programs taking full advantage of the increased screen width. There are also a number of extra functions available to help f3 erases to the end of a line, f4 erases to the end of a page. Switching between upper and lower case is now done by using f1 and f2 respectively. There is

also a screen-dump facility (only to RS232 printers, unfortunately not to Commodore's) using f6, and if you have the right interface, it will give you a terminal emulation mode.

## Converting your own programs

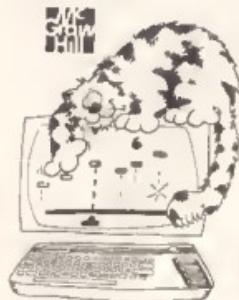
This is a relatively simple task since all the normal PRINT commands are automatically written to the selected screen. To make full use of the 80 column, though, you'll have to rewrite most of the print strings or you will only be using half the screen.

Any PEEKs or POKEs in the screen area will also need to be changed, instead of the normal start address of 1024 the screen is now located between 38912 and 40099. As with the print statements you will have to reorganise the layout since you now have twice the number of locations to use.

Obviously, using the 40-column mode only requires a change to

# NEW

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the screen address. And since there is no colour involved, colour changes and POKEs to the colour map are redundant.

There is one very useful bonus when using Video Pak 80: the ordinary screen area is still available so you can have both the normal TV screen and the machine working in parallel. The TV can be used for Hi-res graphics, for example, whilst the 80-column screen displays associated text.

All instructions are contained in the small booklet that comes with the cartridge. Although only eight pages long it is more than adequate and explains many functions in at least two different ways.

#### Limitations

Although you can use your own programs quite happily with Video Pak, commercial software is less likely to be a success - for a start if you can't amend these programs you won't be able to use the 80-column mode properly.

Also, the cartridge takes up the expansion port and does not reproduce it; so no cartridge based programs can be used. No, it won't fit a four slot motherboard either, because of the short length of the video cable!

The result is that at present you are limited to the software written especially for the Video Pak 80 by Data 90. So what's available?

- \* **Werktuugaaner:** a lovely little WP program, included on the disk which accompanies the cartridge at an all-inclusive price of £149.95 including VAT (there is a combined package, of which more later). Not the most sophisticated WP I have ever used, but it has the basic facilities necessary for normal correspondence.

It formats as you type, which means that with 80 columns you hardly see the whole width of the page as it will be printed. Your document is limited to five pages of 66 lines each, which cannot be altered. Since you cannot normally print on all 86 lines you must remember to

leave gaps top and bottom of each page. You can however change the page margins, which are set initially at 10 and 74.

The program has tabs, centering and underlining - the last of these done by backspacing, which is slow but workable. There are good 'block editing' functions for moving and copying text, though these are limited to whole lines. (One discrepancy in the manual is that the block edit functions are said to be 'three full lines of text'; in fact I moved and copied any number of lines without problem.)

The 56 editing keys work as normal, with one exception. Instead of adding the spaces to type one character, INST takes you into an 'insert mode' that opens up a large gap - ideal for large additions of text, but a bit annoying if all you want to do is add one letter. Still, that's better than not having an insert mode at all. There is also a useful Search and Replace facility that is easy to use and allows selective replacement.

The small (10-page) manual is adequate, and Impex has a splendid self-adhesive 'command strip' which fits above the keyboard on the 84. Each key on the top row is shown with its respective commands (which are selected by using F1 first). This makes using the WP extremely easy, even for a complete beginner, since you no longer have to search through the manual trying to work out what to do next.

Wordmanager allows both disk and tape to be used for storage, with the ability to change devices at any time. Most disk commands are supported - including file deleting.

All in all Wordmanager is a delight to use provided you don't need too many fancy facilities.

- \* **64Cell:** a spreadsheet, also on disk - up to 1,100 cells, with a total of 31,250 bytes available for the data. This also comes complete with a 'command strip' and is extremely easy to use. It gives the facilities of most spreadsheet packages and can be scrolled in any direction; there is also a 'go to cell' command which will move the cursor to any cell in the memory. Fields can be expressed as a 'label' (text), value or formula; the last of these includes a SUM function to add consecutive cells together easily.

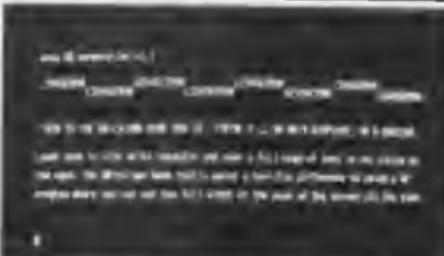
Recalculation can be either manual or automatic; the latter

```
DATA FOR WORKSHEET 101-102
101-102 THE 80-COLUMN MODE SUPPORTS A STANDARD 80x24 SCREEN WORKING AREA
Screen width and height can not be altered
Press F10 with extreme high-contrast lines
```

Impex Video Pak 80 - 40 column mode

```
Screen Resolution
File Type
D Standard F10
F Set Screen
F Set Height
F Change Screen
D Start New File
E Exit Program
T1 Anti Scramble
Information
```

Impex Video Pak 80 - enquiry F1C menu



Impex Video Pak 80 - 80 column mode

amending the whole spreadsheet each time you change a value field. A model which occupied nearly all the available memory took approximately 43 seconds to do a full update, a much smaller model I tried recalculated in three seconds.

Obtaining printouts is also easy - a 'print screen' function dumps the current screen to the printer. To print the whole sheet in screen format you will scroll

through the model dumping each new page. To print the 'structure' of the model (without any values in the cells, just the formulas) needs only one command; this prints all the current settings and also the field types and any options you have selected.

Overall I found that a very neat and useful package for anyone needing a small but pretty comprehensive spreadsheet running on an 80-column screen.

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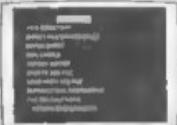
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\* Mail: another of the programs on the disk, intended to give (limited) mail-merge facilities. 'Lined' is certainly the description; Mail is a rather nasty American thing with states and zip codes (instead of county and post codes!) and it prints the city, state and zip all on the same line without punctuation - sigh!

It can only be used to print the address and salutation at the beginning of the letter; you can't add other information to the letter as well. It can however be used to print labels.

I have to admit that it does the job it's intended for; so use it if you must, but you may have to keep remembering the main virtue is that it's free.

#### Other utilities

There are a number of other programs also included on the disk, one of these is a copy program to allow you to make back-ups. Also, both the Vic-20 and the 64 versions are included for all programs, so you get the same disk irrespective of the type of machine (Vic-20 versions are available at £125.95 for the Video-Pak plus £12.50 RAM or £99.95 without the RAM).

Disk 20 has definitely come up with a useful package of software for its 80-column board. When one considers the price of individual software packages running in 40-columns this must be good value for money.

#### The WORD: the real McCoy?

If you want a sophisticated word processor, mailmerge program and database for your 80-column system you can buy a complete package with all there plus Video Pak 80 for only £224.25 (including VAT).

The WORD is as practical respects the well-known (and well-respected) WP program Paperclip run over 80-columns; the manuals are identical for the most part, and even the security dongles are interchangeable! Since this is the case, all the comments in the review of Paperclip (C.U., March 84) apply to the package as well - with the exception that the preview facility now allows you to see the whole page and not just half of it. And in case you haven't realised, comparing a WP program to paperclip is praise indeed.

The manual that came with the review copy was actually not of date, with the result that it

contained a few errors (we're told these have been corrected in the current version). As with Paperclip, the manual is comprehensive; one difference is that the Word is said to be able to scroll horizontally up to 132 columns whereas in fact it can accommodate up to 265 columns. That's extremely wide, far beyond the capability of a printer like the FX-100 in condensed mode.

The only real limitation as far as I am concerned is the fact that it formats on printing rather than as you type. This seems rather a waste of having an 80-column screen when you see virtually the same unformatted text as when running on a 40-column screen.

As I mentioned earlier, at least the preview facility makes use of the full 80 columns, but in many respects I preferred using Wordmanager for straightforward letters where I could see exactly what the text looked like. This is very much a personal factor however and will not deter many people from using what really is a first-class WP package.

#### Inquire Pac: built-in filing

This database program is included when you buy the WORD. It allows up to 200 records on disk, with up to 15 fields per record. Each of the fields can be up to 265 characters long - though that is also the maximum number of characters allowed in a record, so you can have only one field of 265 characters or 15 fields whose combined length comes to 265. If you wish to sort on a particular field, it must not contain more than 30 characters.

Within these limitations you

can organise the data as you wish. The whole program is menu-driven and fairly easy to use. Only 'fuzzy' easy, because you do have to know what you want to do with the data before you create the records; that's true however for most such programs, and is no reflection on this one in particular. Spending some time with a pencil and paper getting the record specification right first time before you touch the computer will save you a lot of hassle in the future.

For example, I decided to limit a particular field to 30 characters; later on I found I needed to put more than 30 characters in, but although I could alter the contents of the field there was no way to alter the size! To do so meant creating a new file completely. Be warned, do your homework.

The sort and search facilities are quite powerful. But there's no 'fuzzy' matching; you have to be very pedantic with your search request. It's also advisable to keep a copy of your record specification handy. Although you can examine the field headings, you can't do so at the same time as requesting a search or doing a sort.

Although an experienced user familiar with the record layout would not find it difficult, I would have liked the program to be a little more friendly in places. If you put a wrong answer in, it either ignores you or reverts to the main menu.

As a general-purpose record-keeping system it could be quite useful, even so. Again, the manual was cut of date and contained facilities which no longer exist; the up-to-date version has apparently been corrected.

#### Mail Merge: useful?

Unlike the Mail program, that one is very handy - especially if you wish to combine information held on Inquire Pac with letters written with The WORD, you can extract names and addresses from the database and put them on a separate file which you then run as a mail-merge file with the WP.

This could be used for example to extract the names and addresses of only those firms who supply you with a particular product and then sending a standard letter to them all.

Mail Merge is easy to use and works well. It'll have any reservation about it, it is the speed of the disk accesses. Since this is a function of the Commodore serial interface system there is little that can be done, but there are so many disk accesses that at times you too fall asleep waiting... Actually this applies equally to Inquire Pac on its own. It is one of the crosses owners of the 64 have to bear.

#### In conclusion

Although I have seen better database systems, none of these will run as the 80-column cartridge, and therefore like the rest. At present you can only run Impex programs if you want the 80-column mode - unless, of course, you write your own.

Still, you could do a lot worse than buy this complete package for use as a small business system together with the spreadsheet and perhaps an accounting package as well. As far as buying the basic 80-column package plus a monitor to run it on, it does seem a little expensive until you consider what you get for your money.

Using the 80-column system with a good monochrome monitor and a good set of software is a necessity. Whether a price tag of over £220 for the business package will make it seem worthwhile depends entirely on how much you need the facilities.

Whether the standard system will appeal to the average 64 user only time will tell.

Personally, I wouldn't mind as my stocking for next Christmas!

My thanks to Theme One Records of Blandford for the use of a Commodore monitor.

### THE ANATOMY OF THE 1541 DISK DRIVE

This 200+ page book is the most comprehensive guide available for the 1541 disk drive users who wish to gain a better understanding of the operating system.

Contents include:

- Getting started
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- DOS operation
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- Utility programs
- ROM listing

Many examples and utilities are included.  
A major feature is the fully commented listings of the 1541 ROM.

Price £14.95

### THE ANATOMY OF THE 1541 DISK DRIVE



### THE ANATOMY OF A COMMODORE 64



### THE ANATOMY OF THE COMMODORE 64

This 200+ page book is the most comprehensive guide available for the C64 owner who wants to gain a better understanding of the lesser known features of the computer.

Contents include:

- Machine language programming on the C64
- The next step - assembly language programming
- A close up look at the C64-Basic
- Music synthesizer programs
- Graphics programing
- Basic from a different viewpoint
- Comparison of the Vic-20 and the Commodore 64
- Input and output control

A major feature of the book is complete and fully commented listing of the built-in operating system - essential reading for all machine code programmers.

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A low cost package with high price features to develop machine code programs on your 64. Written entirely in machine code.

Contents include:

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### ASSEMBLER MONITOR 64



### TINY FORTH



### TINY FORTH

### SYNTHY 64



### SYNTHY 64

Music and sound synthesizer for the C64. The C64 has the most sophisticated sound capabilities of any personal computer. However these facilities are difficult to use in Basic, requiring a series of POKE commands. SYNTHY 64 makes it easy to create music using simple commands. The package includes a detailed manual and feature compositions.

Price £14.95 cassette or £16.95 disk.

Synthy music albums are available on disk at £9.95 each (£7.95 if supplied with Synthy on same disk). Three albums are currently available: Classics, American & Christmas music.

Prices are exclusive of postage. Orders normally dispatched within 48 hours. Many more products are available for Vic-20, Pet, and C64. Send fax for free catalogue and details of discount offers.

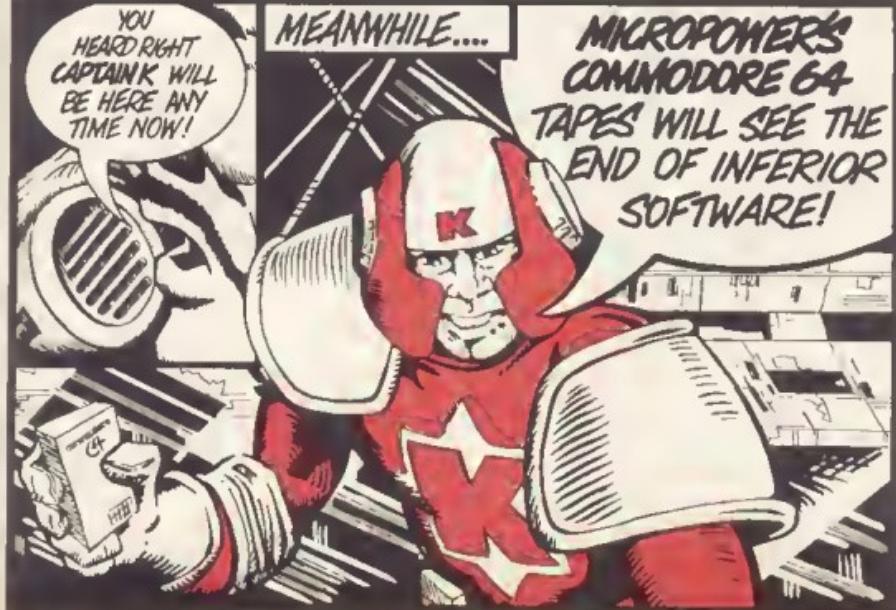
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HEARD RIGHT  
CAPTAIN K WILL  
BE HERE ANY  
TIME NOW!

MEANWHILE....

MICROPOWER'S  
COMMODORE 64  
TAPES WILL SEE THE  
END OF INFERIOR  
SOFTWARE!



*Frank*

The 64 ought to be an excellent computer for games – and fortunately some suppliers are indeed taking advantage of that. Others aren't. Here's this month's crop of reviews.

How do we assess games? Basically we play them – which may sound obvious, except that all the reviewers have seen so many games that they can apply a bit of comparative experience to the evaluation.

We rate games out of five for each of four criteria. **Presentation** means how well the thing is packaged and how good it looks on the screen: dull graphics and poor sound get marked down here. **Skill level** refers to how much skill (of whatever kind) is required to play the game – so if pure chance is involved, the game gets a low mark. (But don't dismiss it on that: some 'chance' games are great fun.) **Interest** is an answer to how well the game did at maintaining the reviewer's interest in it. And **Value for Money** is obvious enough: it's our overall conclusion about how it compares with other games and whether we'd buy it ourselves.

**GALAXY  
CONFLICT**  
Joystick or Keyboard  
Price £14.75

If you are at the beginning of a long dull day and wondering how to kill it, this is one solution: just working through the instructions in this strategy board game could save you the best part of a morning.

*Galaxy Conflict* is one of those games where you start off making several decisions that you don't really understand, and end up an hour or two later living through the consequences of your blundering.

The aim is to rule the Galaxy which has spread out before you on a large board. Unless you like playing by yourself with a 'dummy' opponent, you'll need a partner. This is strictly a two-player game.

The computer's not an opponent; it delays the choices before you and computes the results of your decisions. It also keeps a real-time track of the resources being consumed from move to move. (Note that even doing nothing consumes energy so declining a move becomes a positive act which could cost you points.)

There are four 'planetsations' for each player and each planetaria can had four mineral mines. You start off with the planetaria having a fixed resource level called P1 units. This level is increased in two ways, by the interval moves at the rate of 100 P1 units per go, and by the P7 energy grid – a device by which the computer inexplicably hands out additional chunks of P1 units.

To wage war, you have to build attack ships, called Econocruisers. The catch is that it takes nearly the total resources of your planetaria to build one. And Econocruisers seem to have a million moving parts all of which wear out fast. There is also a crew of 1000 who starve to death if you don't resupply them.

Your objectives are fairly clear: the cruisers mean that this game comes complete with its own



## GALAXY CONFLICT

COMMODORE 64

Computer Game For Two Players



vocabulary) are used to knock in either enemy moon or sunray encroachers. Destroying a normal moon costs its flow 1P1 and a sunray planetaria 7. At 1 start a war of attrition. Destroying enemy & cruisers stop them from the same to you.

But you have to obtain a mark with the ever pressing need to maintain and repair your own cruiser fleet which can only be repaired until sufficient resources have built up on your planetaria.

The hazard is a 5% error of figures. You are also subject to a 1% 'd' risk. This will result in a move of putting the ship into drive semi.

**HEXAPAWN**  
Keyboard or Joystick  
Price £5.95

This game of strategy is a neat piece of programming but I doubt that it would hold the interest of the average punter. A 16x16 chequer board is presented and each player (i.e. you and the computer) has three pawns on the back rank. The pieces move one square forward at a time but move diagonally to take opposing pieces as in chess.

To win you must take all three of your opponent's pieces, block your opponent so that he cannot move or advance one of your pieces to reach the opponent's back row. What makes the game interesting is that the computer has no strategy pre-programmed – instead it learns by remembering mistakes. So the computer is easy to beat at first but within ten games or so the 64 becomes unbeatible.

Clever as the programming is, it cannot compensate for no sound, mediocre graphics and only moderate interest potential. WG R.

A.R. Software

**Presentation:**    
**Skill level:**    
**Interest:**    
**Value for money:**

**GOLF**  
Joystick or keyboard  
Price £7.50

This is not a game to play in the odd half hour. For starters the instructions and outline of the sport must be loaded and read (30 pages), followed by the game proper – a cumulatively long process. Such the handicap for a complex sophisticated program.

The user may choose how low the course is to be, whether to have an opponent or whether to load a partly completed game. As

Mariachi Games

**Presentation:**    
**Skill level:**    
**Interest:**    
**Value for money:**

**NEW**



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**\* Working Seminar of  
Software Initiatives  
at ZERD-products**

**'COM-IN 64**  
all illustrations: R. Baur

**RITTY**

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**RITTY**

**MEDIA**

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**from ZERO!**

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ABRASCO



a new ledge it changes colour and all the surfaces are yellow, then purple and finally green. Eventually, in the interests of science, I accomplished this fast, but I abandoned play when a geyser with specks joined the fray too. There are two spinning discs which afford escape routes but they must be used with care. In practice each advance in ability invites 'one more go'.

This game is in 3D but not spectacularly so. The source contains of basic sound effects. To put an end to my speculation, Amrog now advocates the incorporation of the Turbo quick-load system; faster than the 1541 disk drive 11 Amrog.

program grades the handicap thus should be retained and entered next time round. The computer generates each hole as needed along with the status readouts containing wind speed and direction, distance to green, etc. The player selects club, direction and force of shot from a graphic display.

Plan or 3D view of the course can be altered as will to monitor progress (the program also supplies its own comments on your performance). The green is shown in close up to facilitate putting. After each hole the score card is updated, with a new handicap allocated at the finish.

The only sound effects are a musical scale to indicate the trajectory of the ball whilst the graphics are naturally repetitive. A program to meander through - not otherwise suitable for action aficionados, but great value. LS

Abrasco

Presentation: \*\*\*\*\*

Skill level: \*\*\*\*\*

Interest: \*\*\*\*\*

Value for money: \*\*\*\*\*

Presentation: \*\*\*\*\*

Skill level: \*\*\*\*\*

Interest: \*\*\*\*\*

Value for money: \*\*\*\*\*

AMROG



COMMODORE 64

HEXPERT

Joystick only

Price £7.95

Doubtless you have noticed the ads for the various Bert games and considered them understanding. Hoping from one hexagon to another, eventually to encompass the whole pyramid, seems simple enough - even with bouncing balls and a snake in pursuit.

The trouble is, there seems no spare time in which to formulate a viable strategy: the hunters are right after you and it always seems harder to make diagonal moves with a joystick. When you land on

KRYSTALS OF ZONG

Joystick only

Price £7.95

Add a few sprinklings of Adventure, Game sequencing to a MUNCHIA scenario, and the result is Kryxtals of Zong. There is a matrix of six rooms, interconnected in a logic manner, with a treasure chest in the centre of each. The rooms are colour-coded and only the appro-



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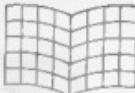
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Name \_\_\_\_\_  
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Presentation:	*****
Skill level:	****
Interest:	*****
Value for money:	*****

MARATHON
One or two joysticks
Price £7.95

MARATHON is a game of mental arithmetic which should prove educational for the 8-14 age group. It



**MANIC MINER**  
Joystick or keyboard  
Price £7.95

This brilliant game is one of the finest examples of what is now called a 'real-time graphic adventure', technical jargon for an animated game of manual dexterity with a good storyline.

Joystick or keys are used to negotiate Miner Willy through long-forgotten caverns in which he will have to jump up various levels, avoiding obstacles such as poisonous panthers, spiders, slimes, and (worst of all) the Manic Mining Robot.

In such cavern Miner Willy has to collect a set of keys before he can proceed into the next cave. An incredible 20 different caverns are programmed, all with high resolution graphics in glorious technicolour and with tremendous animation. The start of the game will demonstrate all 20 levels, which is an entertainment in itself - our favourite is Attack of the Mutant Telephones! Finally, this addictive game is played to an excellent rendition of "In the Hall of the Mountain King". Highly recommended. PR/WC

### Software Projects

Presentation:	*****
Skill level:	****
Interest:	*****
Value for money:	*****

one lined key will gain you access to the riches

To collect the keys, one to a room, you have to negotiate a maze avoiding snakes, bats, spiders and baseball-hitting mummies, according to the level of play. Swords are also randomly deposited in the chambers, allowing you to turn the tables on your pursuers; so are torches which you must acquire from time to time to keep your pursuers visible. Apart from bonus points some of the treasures endow you with special powers - like run-faster boots and an invincible poncer.

The action is of arcade standard. There is much hectic dashing from one room to the next, pursuers to avoid, objects to acquire, a staircase to find in order to reach the next level... Good use of colour and melodies to signify the state of play and to the attraction of an unusual game. Full status readers are given at all times. LS

LS

Presentation:	*****
Skill level:	****
Interest:	*****
Value for money:	*****

**JAMMIN'**  
Joystick or keyboard  
Price £9.95

This came out at the same time as Tasker's excellent Super Pipeline and has been overshadowed by it as a consequence. I reckon it's the better game.

You have to manoeuvre Rankin' Rodney through a moving maze to rescue four musical instruments. Sounds easy? Each instrument is in a different colour-coded area, and you can only jump onto the conveyor belt if the same colour is before you or you can get on to a four-colour square.

There are twenty different areas to get through and each has its own quirks - you must avoid the bichords and skinheads who will take the instruments back, and you've only a short time to get them all. The music and graphics are superb (you do need a colour tv to play this one as several colours appear the same on a black and white set). Overall? Terrific! DB

RAKES

Presentation:	*****
Skill level:	*****
Interest:	*****
Value for money:	*****

MARATHON
One or two joysticks
Price £7.95

MARATHON is a game of mental arithmetic which should prove educational for the 8-14 age group. It



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*Frames*



can be played in pairs; alternatively one player competes for time against the computer.

The top of the screen depicts two marathon runners. Each time you answer a question correctly your man moves one step towards the winning post on the right. The centre of the screen shows two 3x3 grids, each grid square showing a possible answer. When a question flashes up, use the joystick to move the cursor on your grid to the square showing the correct answer, the first person to hit the fire button with the cursor in the right place wins, and his man moves towards the winning post.

Four skill levels (i.e. time allowed) can be selected and the type of questions can be varied between addition, subtraction, multiplication, and so on. The game might be simple, but it is very well presented, and holds a child's interest. A good example for this type of educational program. PR/WG

#### English Software

Presentation:	****
Skill level:	depends on age of child
Interest:	****
Value for money:	****

<b>NEOCLYPSE</b>
Joystick only
Price £7.95

First the bad news: it takes over 10 minutes to load (but at least it's faultless) and the screen is a trifle small. Now for the superb redeeming features.

There are four different cityscapes, liberally peppered with futuristic architecture, gaudily painted by the 64's palette. It's in these graphically wonderful sur-

**CONFLICT**  
COMMODORE 64

At last - an Exciting and Challenging Computer Game!

A fast-paced Real Time Strategy game. Defend your territory, capture, warnings, resources and finance whilst waging war for survival.

For ages 12 years and upwards. From the creators of the award-winning *Galaxy Conflict*.

From 1988 MODESTO SOFTWARE LTD.

**CONFLICT**  
Joystick or Keyboard  
Price £14.75

Many of the comments made about *Galaxy Conflict* apply equally well to *Conflict*. Both are board-based strategy games in which you have to manage all the resources associated with making war. But there the similarity ends. *Marathon* has managed to produce two games on the same principle thus feel very different.

In *Conflict*, instead of having your resources automatically increased by the computer each round, you either have to trade, plunder or mine your cash. Arms can only be raised if you have the funds. This sounds like a morally healthy idea. If the game takes off it could teach a whole generation in a painless way that war costs too much.

The board is divided into rows and columns (from A to Z and from 1 to 20). More than half of it is sea. The rest is split into two territories. You can either play an 'endgame' where you try to invade the enemy city, or you can opt for more limited warfare and try to occupy the largest amount of territory after an agreed number of moves.

Revenue is raised through share dealing, through forces to capture neutral shipping and through prospecting for oil. The stock market values go up when the shares are bought and down when they are sold - the computer works out the relative changes in value. Oil can be found on a randomly located series of squares in each territory. Ships at sea are blown about according to the weather.

The game has enough variables affecting decision making to keep the most ardent empire-builder scratching his/her head well into the night. TH

#### Martech Games

Presentation:	****
Skill level:	****
Interest:	****
Value for money:	****

roundings that you pilot your craft back and forth (Defender fashion) blasting various interceptors and laying waste to radar posts while avoiding the towering edifices and other installations. Score a hit and momentarily you possess the uncanny power of passing through solid matter, thus gaining access to every nook and cranny. Any of the four sectors can be accessed at the touch of a button, transporting you to fresh scenery and new targets. Status update screens appear with every change of sector. When you've rooted out the aliens in the towers and knocked their ships

from the sky the swines reappear in greater strength, later to be aided by ground to air missiles. Shucks!

This is a far cry from the first computer program I ever bought - note especially the sulky-smooth scrolling of the landscape.

Love it! LS

P.S.S.
Presentation:
Skill level:
Interest:
Value for money:

**PAKACUDA**  
Joystick only  
Price £5.95

This is *Pac-Man* as played by Neptune. Your joystick guides a barracuda around the sea bed gobbling up green fishies and avoiding octopuses (I haven't counted the legs). Your supercharging (sic) is of course obtained by courtesy of electric eels. Once swallowed they enable your protege to eat the octopuses (surprised?). The safe period is marked by an audio prompt and the barracuda's green hue rapidly flashing colourously indicates a return to normal. The maze is more complex than that of the late lamented *Jelly Mountain*, as the characters are necessarily smaller.

One question: why not choose orange and red for two of the characters instead of green? And this program does not extend the frontiers of software engineering - but that's why should it? As far as I can see it's a fair version of a much-imitated game which doesn't take account of load. If you want a munchie-style game it's worth a look at this one pre-before deciding which munchie is for you.

Rabbit Software

Presentation:	****
Skill level:	****
Interest:	***
Value for money:	****



**OUTBACK 64**  
Joystick or keyboard  
Price £12.50

It's good on the Vic, and it's fair

*Games*

int on the 64 - Jason Benham has redesigned his highly novel game to include three screens of action plus music ranging from boogies to Beethoven.

Before the compulsive play starts, personal handicaps can be imposed on the main page, then its all systems go. The Acropedes feature is mimicked by baby kangaroos which you (boss roo) are protecting from the clutch of swagmen who first attempt to cage crash by the aid of balloons. These balloons are easy meat (on Level One) for your arrows, which you release at different heights from a strategically-erected pulley system; bonus objects appear at the top - up top and grab em - while the would-be abductors pelt you with apples and boomerangs (which naturally have different flight paths).

Screen Two, and the swagmen have put their trust in a helicopter and parachutes which you must dispatch with your archery. They slink at different levels thus adding complications to the proceedings.

If you haven't assumed the garb of an angel too often, Screen Three presents itself new problems to surmount. This time your adversaries are floating upwards in order to push a precariously-placed rock in your direction. Fast, accurate arrows are needed here, for each swagman mussed ensures that the rock inches closer. As a pernicious surprise is promised after each third screen I must get some practice in!

This is very good, indeed excellent, implementation of an original idea. Plenty of animation to entertain, full of colour varying with each act and great sound effects. The scoring is exemplary with the best retained in a table. Deserves to be a bestseller as there is codiles of program for your money. LS

Paramount

Presentation: \*\*\*\*\*  
Skill level: \*\*\*\*\*  
Interest: \*\*\*\*\*  
Value for money: \*\*\*\*\*

**SHADWFAX**  
Joystick or keyboard  
Price £4.95

Using either a joystick or the keyboard you control the up and down movement of Shadowfax - a galloping white horse snatched on the last of the screen.

Horses of black horses gallop

dodge or shoot. To do the latter, you launch a thunderbolt and by releasing the fire button at the crucial time it will hopefully explode at one of the approaching mounts. As the game progresses it gets faster and faster until inevitably you fail to dodge one of the black stallions - or the RSPCA catch up with you.

On the credit side, the animation of the galloping horse and the sound effects are very good - even on the Vic version. But the game is very unimaginative and has little to hold interest for long. The cassettes has a C64 version on one side and a version for the unexpanded Vic on the other. PR/WG

Postscript

Presentation: \*\*\*\*\*  
Skill level: \*\*\*\*\*  
Interest: \*\*\*\*\*  
Value for money: \*\*\*\*\*



**STELLAR DODGER**  
Joystick or keyboard  
Price £7.95

Terminal Software has produced a very good version of the Lunar Rescue-type arcade game. The scene depicts an orbiting mothership and a planet surface with three supply dumps. You control a space shuttle which on release from the mother ship has to be guided down to one of the supply dumps, negotiating a treacherous asteroid belt en route.

During the return phase in which the shuttle is thrust back to the mothership, you can blast away at the asteroids to chew a path through.

The colour and resolution of the graphics is pleasing to the eye and the control of the shuttle very smooth - requiring some skill and anticipation because of inbuilt inertia. There are seven levels of diffi-



culty and several other useful features. All in all, good value for money PR/WC

Terminal Software

Presentation: \*\*\*\*\*  
Skill level: \*\*\*\*\*  
Interest: \*\*\*\*\*  
Value for money: \*\*\*\*\*

**TAXMAN**  
Joystick or keyboard  
Price £6.00

Taxman must be one of the most copied arcade games, and Taxman makes little attempt to conceal its pedigree. Your man dashes around the maze gobbling up money dots, whilst four taxmen chase him, trying to make him bankrupt. If he eats a star then the taxmen bow their heads in shame, and for a few seconds, your man has a chance to eat them.

There are six levels of play with a different maze format for each.

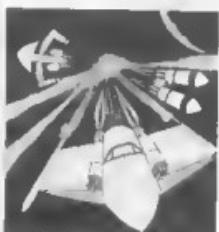
This game has little to command it - the use of graphics/colour is poor and negotiating the maze is

slow and tedious. All in all a poor adaptation of what was once a brilliant arcade game PR/WC

Mandate

Presentation:	*****
Skill level:	****
Interest:	****
Value for money:	****

**XERONS**  
SUPERSOFT



**XERONS**  
Joystick or keyboard  
Price £5.95

For 'Xerons' read 'Galaxians'. Apart from being a good implementation of a well-known theme, the matrix of colour, form and movement all lead to impressive screen displays.

Each time a galactic formation is annihilated a more complex armada replaces it, increasing the visual impact. Every stage is colour-coded, the early ones are fairly easy but not too many players will stomach through later screens.

The enemy always come in three styles (my favourite being the multi-colour variants). All whiz, dive, drop bombs and generally convolute into the most awkward situations. A hit on the lone stalwart laser base generates a retina-rasping routine with the possible odd curse from the controller. The explosions sound good and beefy, indicating something solid has been hit.

The best advice I can give is to compare it with Atari's Galaxy, then decide which is for you. LS

Supersoft

Presentation:	*****
Skill level:	****
Interest:	*****
Value for money:	*****



Mandate

## UNICOPY: single-sided disk copying for the Commodore 64

by Jim Butterfield

Copying programs and sequential files can sometimes be difficult. There are backup programs available, of course; but they require you to copy the whole disk, and sometimes you just want to copy one or two programs. LOAD and SAVE work for simple BASIC programs, but not for anything complex.

Well-equipped users have two disks, and can use utilities that will transfer from one to the other. But dual-disk units (notably the Commodore 4040) don't quite do the job. There's a slight formal difference between 4040 and 1541 that makes it undesirable to write on a disk formatted (NEWEd) on the other unit. Thus, a 4040-copied disk is not well suited for the 1541 if you want to write further material to the disk.

UNICOPY will help to solve these problems. It will take your choice of programs as sequential files from the disk and load them in memory. When you're finished, or when memory is full, you may now write the files to a new disk ... or to cassette tape:

As you scan the input disk, you'll be offered programs and sequential files for copying. You may tap the 'T' or 'N' keys to signal yes, you want to copy this file, or no, you don't want this one. More on this in a moment.

Before presenting you with a file name, UNICOPY looks at the size of the file and the amount of memory space that is left. If the file is too big to fit, the program won't offer it to you, instead, it will signal "... MORE" and quit scanning the directory. That way you know there is more on the disk, but it can't be fitted in this time. UNICOPY could catch the missing file on a subsequent run.

The program will not skip by the big ones to look at smaller files later in the directory, since it might be important to you to keep a group of files in the same order as they were shown on the previous disk.

There's one exception to the 'skip on big files' rule: if the file won't fit into the whole memory buffer area, there's no chance of copying it with the program. UNICOPY will skip such jumbo files.

### Buffering files

How big is the buffer area? It depends on how your Commodore 64 is configured. If it's a 'clean' system with no other resident programs, UNICOPY will throw out BASIC (temporarily) and use all the memory it can pat - about 48K, or the equivalent of 192 disk blocks.

On the other hand, a program in residence - monitor, DOS wedge, interface package or

whatever - must not be disturbed. In this case UNICOPY will become conservative and restrict itself to less than 36K or 144 disk blocks. The exact amount of space will depend on the other program's location and size.

You'll be asked "Any resident programs?", at the start of UNICOPY, buffer size will be set accordingly.

One more thing if you plan to direct the output to cassette tape. UNICOPY must ensure that no more than 25K or 112 blocks are used. There's a glitch in the tape routines that forbids writing a program from above address 33700; so UNICOPY will trim accordingly. By the way, this solves a nodule problem with cassette tape: normally, you can never save memory above hex \$7FFF because of this glitch, but UNICOPY will move the program down and save it successfully from where it is held in lower memory.

### Initial tasks and first questions

If you're copying another disk, be sure that the destination disk is formatted before running UNICOPY. The disk may already be formatted if you're just adding some new files, but if not, remember to NEW it, since UNICOPY won't do the job for you. You may copy files to more than one disk; format them all as necessary.

We've already mentioned "ANY RESIDENT PROGRAMS?". Answer Y or N

"OUTPUT TO TAPE OR DISK?"

calls for touching the T or D key. If you select Tape, you'll be asked "WRITE END-OF-TAPE MARK?". If you respond with N, you'll copy the programs to tape and that's all.

If you answer Y, you'll copy the programs to tape and then write a special block called a tape mark. Here's what the tape mark does: at some later time, if you're searching through this tape for a particular file, the tape mark will stop the search. So if you don't find the file you want on tape, you won't go running through the whole tape - most of which will be blank. An unsuccessful search will terminate early, thanks to the tape mark.

"DISK INPUT PATTERN?" allows you to use pattern-matching. You're prompted with the asterisk if you want to use everything, just press RETURN. But there are many other combinations: "A\*" will present you only with programs that begin with A, such as AR, ARCHER, ARM or ARKRQH. "R\*D" will present you with such names as REDS, RIDE, or R2D2 but not RIDDLE. "=" will offer programs only And "PLUTO" will offer you only a file called PLUTO.

When you are presented with names from the directory, you may type Y or N to accept or reject the files for copying. If you know that you want to take or reject a sequence of files, you may hold down the appropriate key. The RETURN key acts to 'lock' in the previous key, so that pressing Y, RETURN will accept and N, RETURN will reject everything.

### The output

Eventually the questionnaires will stop, and the computer will advise "READY TO WRITE FILES, PRESS ANY KEY". Don't press that key yet.

After the files are loaded, the computer will say "READY TO WRITE FILES, PRESS ANY KEY". Don't press that key yet.

If you're writing to cassette,

place the tape in the drive if you

have time and think it's

necessary, fast-forward and rewind the tape to even up the tension. Finally press PLAY and RECORD and touch any key on the keyboard. The tape will start to write; the screen will go blank of course.

If you're writing to another disk, take the 'origin' disk out of the drive and put the destination disk in there. (You did make sure that the destination disk was pre-formatted, didn't you?) Now touch any key on the keyboard. As the files write to the disk, you'll see their names displayed.

If any errors are encountered during input or output you'll be told about them.

When the copying job is done you'll be asked "ANOTHER OUTPUT?". If you want to write to another tape or disk, put it into the drive and press Y for 'yes'. Otherwise, press N and the job is done.

(Note that UNICOPY does not attempt to copy USR or REL type files, nor does it try to copy 'direct' data. This type of job should be done by the programs which use these types of files.)

### The generator

The listing given here is not program UNICOPY64. It is a generator program that will write program UNICOPY64 for you. The DATA statements will be checked carefully for accuracy before program UNICOPY is created for you; you'll be told of any errors.

Type in the program. Take special care with lines 200 to 320 and don't miss the semicolon at the end of line 300! When the program is complete, place a disk into your disk drive (UNICOPY64 will be written on it) and type RUN.

It will take the generator over 6 minutes to check the accuracy of your DATA statements. If there are any errors, you'll be told about them (the line number will be given) and UNICOPY64 will not be written.

If there are no errors in the DATA statements, program UNICOPY64 will be written to disk and be ready to LOAD and use.

(Program UNICOPY 4.0 and UNICOPY64 are already in the TMUG library and thus are public domain).

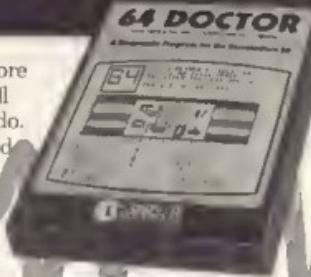
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TOO LONG!

~~Victor~~

## Albert's Assessment Aid: financial aid program

*By Albert van Roodt*

If you save twenty quid a week for ten years, how much money will you have? If you increase your mortgage repayment by £30, how much sooner will the house be paid off? What's it worth to give up smoking and/or Cokes? This little program will tell you

There are three main areas of calculations it will help you with: loan repayment, saving one lump sum, and saving on a regular basis. In each area you can calculate any of the variables - for instance the time needed to pay off a loan.

I was too bone lazy to use the proper terminology so a "premium" means any payment you make, be it to pay off a loan or to save money. Similarly, "capital" means the money at the end of a savings term, or the amount you're paying off if you'll excuse those little errors, you'll find the program very nice to use.

Just a few notes on the structure  
Lines 5-60 are the main menu,  
Lines 100-199 calculate loan  
repayments, Lines 200-299  
calculate savings on a lump sum  
(also called a "prepayment"), Lines  
300-399 calculate savings on  
monthly payments. Lines 600-900  
are input routines.

No special Commodore Basic commands are used, so this program will work on Vic and 64 - and could very easily be adapted for use on other success

卷之三

# SECURE A tape protection system

by Fred Reid

This handy little number should make any Basic program on the 64 uncopyable.

To save a program with this system, first LOAD "SECURE" (it will run automatically) and then load in your master program. The system will work with any Basic program, providing it is fully watertight.

Now we'll tidy up your program, ready to SAVE it in the protected format. For a start, if your program doesn't disable the RUN/STOP key a POKE 506,251 inserted near the start will take care of that.

To prevent access to your program in case of an error occurring, POKE 768,236 POKE 769,232 will cold-start the machine if an error occurs.

It is a good idea at this point to remove all unwanted spaces and REMs (if you haven't already done so). This will reduce loading time and make your program run faster.

Now, we are ready to SAVE Insert a blank tape and type SYX(0158)"Basename" SAVEEND. The prompt should appear ("PRESS RECORD & PLAY" etc). When the tape stops, the operation is complete.

You can now load in another program for protecting in the same way.

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```

0  FUD1MOTOL, zFHdRdRdRdE14-4-150, RINE, T1
1  DATA164, 41, 141, 13, 147, 187, 184
2  DATA141, 2, 195, 167, 165, 153, 4
3  DATA141, 2, 3, 163, 2, 173, 44
4  DATA141, 3, 7, 165, 45, 141, 29
5  DATA141, 165, 165, 46, 141, 26, 191, 164
6  DATA3, 133, 46, 169, 4, 132, 45
7  DATA166, 96, 143, 192, 192, 157, 165
8  DATA2, 202, 16, 247, 169, 8, 123
9  DATA425, 169, 8, 175, 151, 160, 1
10 DATA177, 251, 13, 155, 145, 251, 101
11 DATA209, 241, 230, 252, 1e-6, 252, 201
12 DATA168, 206, 219, 32, 212, 225, 169
13 DATA3, 133, 185, 13, 19, 205, 177
14 DATA203, 190, 133, 42, 173, 24, 163
15 DATA135, 44, 172, 11, 177, 177, 163
16 DATA173, 2e, 192, 132, 4e, 163, 125
17 DATA141, 50, 7, 1e9, 192, 141, 51
18 DATA3, 169, 131, 141, 2, 3, 169
19 DATA1-4, 141, 71, 1e9, 0, 111
20 DATA157, 4e, 1e9, 207, 141, 50, 1
21 DATA164, 245, 141, 51, 3, 169, 1
22 DATA170, 1e8, 32, 1f2, 255, 169, 1
23 DATA162, 121, 160, 141, 32, 184, 251
24 DATA2, 69, 215, 169, 6, 157, 201
25 DATA169, 6, 107, 252, 169, 1, 177
26 DATA251, 13, 255, 145, 251, 206, 20e
27 DATA247, 230, 252, 1e5, 252, 201, 1e9
28 DATA209, 239, 9e, 169, 131, 141, 2
29 DATA2, 169, 1e4, 141, 3, 5, 1e9
30 DATA0, 135, 157, 32, 213, 255, 1e9
31 DATA1, 170, 1e8, 32, 18e, 258, 1e9
32 DATA1, 162, 1e6, 1e0, 2, 32, 189
33 DATA255, 1e4, 0, 52, 213, 255, 1e4
34 DATA85, 1e4, 47, 154, 49, 12, 2, 46
35 DATA132, 45, 174, 50, 160, 0, 137
36 DATA251, 1e9, 6, 153, 252, 206, 1e9
37 DATA255, 81, 251, 145, 251, 208, 20e
38 DATA247, 230, 252, 169, 252, 201, 1e9
39 DATA208, 239, 1e9, 0, 52, 34, 16b
40 DATA22, 142, 1e6, 1e6, 174, 167

```

READY.

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By Bryce C. Newell



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# one book, one tape

by Richard Hunt

This time our regular reflection of the Forth programming language takes in two curate's egg introductions to the subject - an introductory book by the prolific Owen Bishop, and an interesting attempt by Romik to put the FIG-Forth standard on to tape for the 64.

Romik has produced for the 64 an implementation of FIG-Forth (initially on tape, but a disk version is to follow).

The package comes with a pocket-sized manual, and as with the VIC-Forth by Dataram it is disappointingly small. It consists of a descriptive list of implemented words, a two-block example application, a general memory map and a list of error messages. Some of the word descriptions are laconic in their brevity; and in the version I received for review there were two discrepancies present between the source code to be entered for the demonstration application and its alleged listed output.

Having said this, FIG-Forth is pretty well documented elsewhere: excellent textbooks are available, and indeed a couple of these are recommended by Romik.

### Screen

The implementation loads from tape in three minutes and displays a sign-on message. The memory map indicates that some 2K is used for the Forth operating system from \$3000 to \$2000. Immediately above this is the editor vocabulary which thankfully is resident without further ado. To my mind the first thing to do is to change the screen colour to something other than the eye-boggling atomic blue. This is easily accomplished by entering

a 53280 cl n 53280 cf

- for background and border colours respectively (where n is a number between 0 and 15).

On a more permanent basis it may be useful to define words such as

```
: background 53280 cl; (a) --)
: border 53280 cl; (n) --)
: colour background border;
(a) n2 --
```

I find > 9 6 colour < produces a refulgent and clear picture.

Next I set about entering the demonstration blocks. At this point I'd recommend the inexperienced Forth user to refer to a reference book such as Windfuhr's Complete Forth or how to use the editor vocabulary. Essentially you need to prepare the input buffers for data entry, select one of the two available buffers, call up the editor as current vocabulary and [put] the code on the appropriate lines - all standard editing procedure.

Once an editing screen is filled it must be marked as updated and save-d in whatever medium is available for virtual memory. Normally this would be the disk easy to use for quick and painless data storage because each block is identified by its block number and loaded by a simple command e.g. < 10 LOAD<. The block may then be edited and re-saved by the commands [update] and [flush] without reference to where the physical entry on the disk may be.

With a tape-based virtual memory all this is much more difficult. First, each block must

be entered correctly and [flushed] to tape storage in sequence. It is vital to note the cassette counter numbers each time the cassette is started and stopped: a gap should be left between blocks so as to avoid over-writing problems.

Make use also of the word [empty-buffers] before entering anything to a block so that you may be sure of its contents. Do the same before listing or loading from tape.

### Picking nits

The cassettes act as a counterpart in every operation to a disk unit - but also without the disk unit's all-important speed and flexibility of access. My experience is that it is very easy to lose patience with the cassettes simply because data cannot be accessed on a random basis.

Back to the demonstration. This should be entered exactly as instructed bearing in mind the caveats above. My copy of the manual contained two errors just in case. Block 1: line 3 should read after listing..

3 p over 2 \* over ;

And line 11 should be

11 p reverse 13 0 do 1 colours + !

This displays pretty bar patterns and colours until the RUN/STOP key is depressed.

For my Vic Forth implementations I have defined a number of useful words that

extend stack manipulation, logical operators and the like. Most worked, except those that referenced memory locations with specific system functions. (Not being too familiar with the 64 I have not changed them, as the machine was on loan to me for only a short time.)

Otherwise Romik Forth works much as expected. I should add that I am not that proficient with Forth to worry about what words have or have not been predefined: one of my repeated points is that if it is not there, do it yourself!

The package is not too difficult to use and is reasonably good for beginners who will like the 'warm start' capability of the `* RESTORE .` key. I would like to have seen some use of all the spare RAM which is more than ample for Forth applications. Temporary storage of edited blocks to avoid unnecessary use of the cassette, for instance.

All the 64 features are programmable from this Forth, which only leaves stack problems to overcome. Stack overflow causes spectacular crashes and a non-destructive stack print is useful to monitor problems before they occur. For this implementation try entering

```
: depth sp= 123 swap -2 : ;
.n cr depth if spw= 2 = 123 de
l ip. -2 +loop else ." stack
empty " then;
```

As stack overflow should be subject to a government health



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## Maze Master

By Michael Crawford

Maze Master is a 3-D fantasy adventure game set in the world of BALROG. You are the last survivor of the Ring-bearers and has descended from the Valar of Middle-earth. Your task is to find the Ring of Power and destroy it. You will need to travel through many levels and avoid the many dangers of the Ring-bearers.

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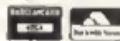
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writing anyway, you may find this useful as well.

stack? sys. 50 ~ if split  
"Danger - stack overflow!"  
then ;

which gives a depth of 32.  
More than enough I should think.  
Forth is a full scale implementation of the language, and as such seems to fit home computers badly at the corners. I think any pure implementation will suffer to this direction.

Change it to fit the characteristics of the computer, and immediately the implementation is non-standard.

#### Tape vs Disk

Remark, I suspect, has been faithful to the FORTH. The main drawback is using tape as a substrate for disk - far too slow and cumbersome. It is better than nothing, though, if you don't have a disk unit.

I find the price of £19.95 somewhat high for a taping program given the inherent difficulties. I know whose implementation I'd prefer when

diskless! The choice is therefore between standard Forth and relative ease of use. As ever, you pays your money and you takes your choice.

By now regular readers should have an idea of what Forth is and maybe why and how it can be used. Although Exploring Forth is designed to be a book for newcomers to Forth, I shall assume that I don't need to explain fundamentals in this column. The existence of a new book demonstrates the truth of the first line of the book that there has been escalating interest in the language in recent years.

What is a beginner going to look for? First you will have invested in an implementation of Forth. You'll want to protect that investment by learning about it in a practical manner. Few user manuals are helpful in this area and a book is needed - an intelligible book that doesn't cost the earth and that can relate to the micro-com (sic) of the user better if it relates to his micro-computer.

Exploring Forth is a straight-

forward book that sets the reader entering Forth words early on. It is emphasized by the author that the best way of exploring Forth is to sit down at one's machine and enter things to see what happens. I am in total agreement. One of the most satisfying bits of it all is putting it into practice (Computer buffs do it with their fingers! This statement has nothing to do with the review.) Each chapter concludes with an 'Explore More' section inviting the reader to solve problems. No answers are given. This really is the way to see what happens!

The first avenue explored is arithmetic in parallel with the stack. All proceeds well for a while, but I fear that binary arithmetic and an explanation of signed integers in terms of two's complement is a little on the heavy side for a novice at this stage in the proceedings.

From chapter 5 constants, variables and elementary number formatting are introduced. The approach to the latter is interesting. Other systems and pundits rely on the [<#] [#].

[#] and [# ->] words which use [hold] and [sign] in formating numeric strings. Bishop simplifies matters by using [+] and [-] or [dot] with equally effective results. Moreover these words are easier to understand than [#] etc. which can be left until the user has a bit more Forth experience.

There is a section on high-resolution graphics that looks interesting. As we all know, however, Commodore did not make it easy to implement them even in BASIC some day for this column I'll work out how it can be done in Forth. (From you may infer that I have not tested the hi-res routines in the book.)

Bishop is right to suggest that Forth should make use of features of the macro for which it is implemented. To a large extent this is left by Forth systems (at least the cheaper ones) to the user. There is therefore a lack of words explicitly to create hi-res graphics. For C64 owners, words such as [>-VDU] defined with a specific action on the BBC machine are of little use. A whole

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~~Forth~~

new routine must be created for whichever CRM machine is in use to enable bar-reps and user-defined graphics.

I was particularly interested to read about how Forte stores the menu such as arrays that are created as you go along. Although I have read other books, I found Bishop's exposition rather easier to understand by being less technical. The use of [m] and [eu] to explore the contents of memory cannot be over-emphasised as a worthy exercise - and a lot easier than Basic's PRINT PEEK!.

Loops

The chapter on loops caused me pause. The name Fibonacci fascinates me mainly because I can't spell it; apart from that, the series of numbers that bears the gentleman's name has a certain appeal and a suitable word is defined for your pleasure. The word `user-friendly` is delightfully ironic. Even if you

> don't ever read the book, try  
> entering  
> user friendly begin "hello" again

and discover the true meaning  
of an endless loop

There are a number of other goodness contained in the later pages. There are some sort routines for those who like that sort of thing, and (I assume to assist those who suffer deprivation pains) routines for formatting input and output of floating point numbers.

This raises a deep philosophical point. Forth addicts may well throw up their hands in mock horror at using simulated floating point numbers in an integer environment. Really the choice is the user's. Forth can be adapted to suit individual tastes and needs of the masters. The definition of these floating point words merely illustrates that principle.

The final chapter on logic is as good a presentation of the subject as I have seen. Bewise logic for the non-mathematician

is always a heady potion. It is presented here with clarity and a practical problem solving purpose. Although that purpose is a little esoteric, again the principle can be adapted as required.

### **Conclusion**

Owen Bishop has written a readable beginners book. He does not attempt to enter the debate about Forth standards; he sets out to provide material which will demonstrate and teach Forth at the keyboard.

My only complaint is the choice of Acornsoft Forth for the BBC machine. It is also unfortunate that the Jupiter Ace for which specific examples are provided has

ceased production in the time taken between writing and publishing the book (Was fate stacked against it?)

The appendix on conversion to other systems is a little light and I see the cause of this in the emphasis placed on the two machines. A further appendix providing a list of standard words would have been a useful addition.

All in all, an enjoyable book with some good and some poor aspects. This being a column on Forth using CBM machines, you must decide for yourself whether the references to competitor machines detract from the book's value. In these circumstances I confess I would think twice before buying it.



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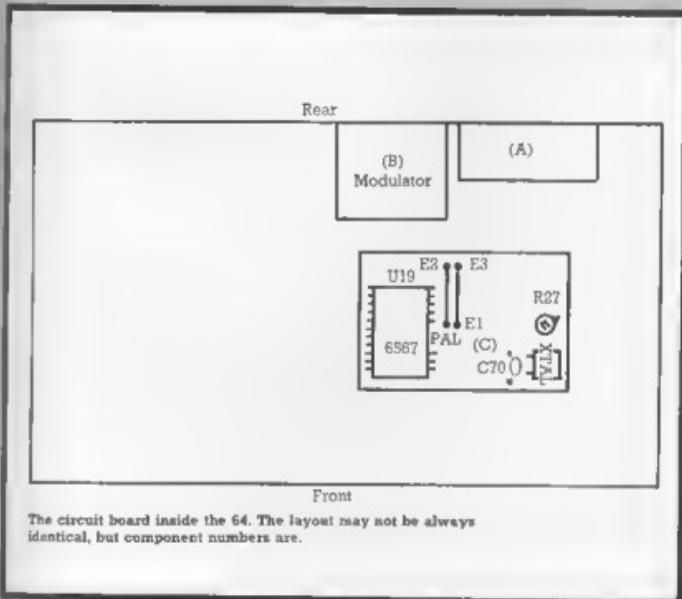
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DEALER ENQUIRIES WELCOME

# How to convert a 64 from NTSC to PAL

Some time ago an unhappy friend called me with this tale: "I made a business trip to the USA, and I bought a 64 for my son (which, of course, was a lie, as it turned out) and I thought that I made a bargain: the price was good and I also managed to smuggle it through the customs (thereby avoiding the Swedish VAT at a hefty 23.64 per cent). When I connected it I only got a black and white picture that was impossible to make steady. What can I do, I went to the local shop and they said that the machine is unusable in Sweden."



The circuit board inside the 64. The layout may not be always identical, but component numbers are.

This type of blunder is not too uncommon, unfortunately. To say it in an unscientific way there are two reasons for the trouble. 1) We have different colour systems for video (TV) pictures. The one in Europe is called PAL (phase alternating line), in USA and Japan they have NTSC (Never twice same colour). If I remember correctly,

2) We have a different mains frequency to which the TV picture frequency is related. At least the number of lines making up the screen (625 in Europe, 545 in Japan and the USA) is not significant in this case.

If you are satisfied with a black and white picture it is possible to return an old TV without having to open your

computer. We will not handle this subject here, though. I'll deal with tweaking the 64.

To convert from NTSC to PAL a few accessories are needed. These may turn out to be rather expensive, I'm afraid, but it may be better than to leave your computer unused! Some of the components could be bought in the local radio service shop but most of them have to be bought

at a Commodore Service Centre. This is what you need:

- a new mains unit - do not try to connect the American mains unit to your wall outlet. Alternatively you can buy a step-down transformer with an input for 220 volts (continental Europe) or 240 volts (UK) and an output of 117 volts to suit the original mains unit.
- 40-pin integrated circuit called the 6589
- crystal, frequency 17.734473 MHz
- a miniature ceramic capacitor at 15PF

You have to be very well trained in soldering in order to do this, and if you are in any doubt at all please turn to a friend who can do it for you. The machine has a delicate but well-made PC board, double-sided, and therefore it is more difficult to work with than something like the board for a hi-fi amplifier.

I must also point out that there are many different versions of the 64 around which do not look alike inside. Before you buy all the things listed, open your unit and see if it resembles the one described here.

It must also be pointed out that if you open it the guarantee will be void, which might not do anything in this case because it is only valid in the country where you bought it. (Commodore, how about a worldwide guarantee system?)

Switch off the computer and take out the mains plug. Open the cover by unscrewing the three screws on the bottom cover, the side normally towards you. Fold the keyboard upwards. Be sure not to harm the wires going to the LED indicator disconnect if you like, as well as the cable harness to the keyboard. Loosen the foiled

# Project

cardboard stuck to the shield of the cartridge expansion port (A). Fold the cardboard over the edge towards you.

Now you can see two tin boxes (B) and (C). Locate the IC called U19 in the (C) area. (C) may have a cover which you will have to remove carefully using a small screwdriver.

U19 is a 40-legged integrated circuit and should be marked 6587T. Remove this IC, preferably using a special tool (two small screwdrivers may do the trick if they are stuck in under the IC at its short sides). Please remember the direction of the IC, usually marked with a small slot on one of the short edges. Now push in your new 6589, in the same direction! The legs may have to be bent somewhat inwards to fit the IC holder properly. Check that all the legs are exactly above their holes; then push evenly over the whole IC trying to get all the 40 pins down into their holes at the same time (otherwise the legs may be damaged).

Locate C70 in the same area

(C). Desolder the present one and solder the new one there instead. Just bend it if you find the crystal change that too.

Now there is only one more thing to solder and that is the jumper wire, also in the (C) area. In case of an NTSC 64 the jumper goes between the letters E1 and E2, printed on the board. Desolder the wire and move it to the adjacent position, between markings 'PAL' and 'E2'.

Now we shall remove the cover of the modulator (B). It seems that the cover is soldered on one point on most machines I have seen, so this must be loosened in a special way dislodging with one hand, peeling off the cover with the other.

After all this is done it is time to check everything. Make sure that there are no leftover wires and other things that can cause short circuits on the PC board (it is not necessary to reconnect the keyboard yet). Now connect the power supply in both ends and switch on the computer. You should see something that may

become a colour picture.

Locate a trim potentiometer, R27 in the (C) area, near the crystal turn it gently. Now it should be possible to get a stable colour picture.

If you are dissatisfied with the picture you have to go to the modulator (B). Inside there you can see some trim points; they look different but all have a slot for a screwdriver. These should be turned by a very small screwdriver made of nonmagnetic material, for instance plastic or copper. Go through the trim points one by one, turning them carefully to either side of their original position and watch the screen. You should find that one of those controls optimizes the picture. Some 64s have a control called R28 which shall also be tried and turned to optimized position.

Then maybe the previous control has to be readjusted again because those controls interact but finally you will get a good picture. Just do it methodically, and do not rush.

Always keep track on how many

turns you do in either direction on each control so you know where you started.

Do you have any sound? Connect your keyboard - switch off the computer first. Load a program with sound or make some POKE statements to produce a triangular wave (see manuals). If there is no sound, or it is distorted, it's time to try and tune those points in the modulator which did not appear to have any effect when you optimized your picture. When doing that you should be able to optimize the sound to become free from distortion.

If by doing this the picture deteriorates again, you should go through above picture optimizing once more, and then the sound again, until everything is okay.

Now put the whole thing together again in reverse order. And good luck!

**Memo to readers in France - this procedure should also allow to convert a SECAM 64 to PAL Ed.**

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# The £1,000 competition winner

Peter Bartley of Ushaw College, Durham, won the £1,000 competition we ran in the February, March and April issues.



Actually, none of the entries were entirely correct. But Peter was one of those who got only one of the Part One questions wrong; and his Parts Two and Three answers were thought very good. He came up with the only re-tellable computer joke out of the lot (embellished into a shaggy dog story!)

## The joke

A man carrying two heavy black suitcases is stopped in the street by another bloke who asks him for the time. Man puts down suitcases and pulls back sleeve to reveal a tiny black watch. He presses the button and the top slides open to reveal a miniature microcomputer. He says to it "Time?", a faint whirring as the miniature floppy disk loads its speech recognition program, a click or two as the heads engage, and the watch glows momentarily.

"Which time?" it says in a thin but perfectly modulated BBC voice. "Greenwich Mean Time, British Summer Time, French Summer Time, Pacific or Eastern Standard Time..."

"Greenwich Mean Time" interrupts the man. "OK" says the watch "But I'd rather do half-life calculations for sub-stellar particles. By GMT it's ten fifteen and 30.0047 seconds. Or at least it will be when I've finished talking!" "Thanks" says the man, and he presses the button again.

"My God!" says the bloke who asked for the time. "That's really amazing! I've never seen a computer that small - can I buy the watch from you?"

The bloke with the watch explains that it's a prototype one, but after much pleading he agrees to part with it for £2,500 and the bloke's two-week timeshare in Marbella.

Pleased as punch, the new owner puts on the watch and walks away gleefully punching the button. He hears a shout, turns round and sees the other guy puffing along with the two heavy suitcases. "Hang on," he pants. "Don't you want the batteries?"

## The Part One answers

1. What is the name and country of birth of Commodore's heavyweight founder?

Jack Tramiel was born in Poland.

2. a) Who did Don E. Felt build in 1964 using meat skewers, rubber bands, staples and a wooden macaroni box?

An early transputer.

b) Approximately when was the abacus invented?

Some say 2,000BC, but it was probably nearer 3,000BC.

c) Babbage designed two computers, which one got built (more or less)?

The Difference Engine.

What do these acronyms stand for?

a) MOSFET      b) ESD

b) EPROM      c) VIC

c) DIP            d) IEEE

d) PET            e) ADER

a) Metal Oxide Semiconductor

b) Field Effect Transistor

c) Erasable Programmable Read-Only Memory

d) Dual In-Line Package

e) Analog-to-Digital Converter

f) Transistor

g) Sound Interface Device

h) Video Interface Chip

i) Institute of Electronics and Electrical Engineers

## In Attack, Sustina, Decay, Resonance

4. If you add 2 and 1 together and get 10, you're either lousy at maths or you've got it right. Why? Because you're using binary arithmetic.

5. And if I and I make L, you're either lousy at maths or you're using a special form of algebra. What's it called? Boolean algebra.

6. Who designed the Pen? Was it a Steve Jobs b) Chuck Peddle c) Bobby Moore d) Chuck Peddle

7. What was the first thing Commodore manufactured? Was it:

a) the Pet            b) a typewriter

b) an office calculator    c) the Vic

c) a scientific calculator

d) Typewriters

8. Can you list three truly and one copycat computers?

Choose from Apple, Acorn, Acorn, Peacock, Tangerine and more!

9. If a computer is described as dedicated, does it:

a) like you very much

b) perform only one task

c) spend a lot of time at

Greenbank Common

d) perform only for one person

e) perform only once

f) performs only one task

10. Commodore has a VIC and a manufacturing plant in Germany. Where is it?

It's at Cobry in Northants. No manufacturing is done in Bingley, and in any case everything is moving to Cobry later this year.

11. If black and blue is 14 what's blue and black?

104 (week it out)

12. Who wrote "Gridrunner"?

Jeff Minter

13. There's a computer language called Ada. Is it

a) an acronym? If so what does it stand for?  
b) named after someone? If so who?

It is both after Ada, Countess Lovelace, the wife of Byron and by virtue of her relationship with C Babbage a lady with a good claim to be the world's first programmer.

14. What are the alternative names of the Tynes T1000 and T2000? Sinclair ZX121 and Spectrum

15. What does 'warp' mean? It's Japanese for 'warming' and has the same meaning in the game. Does 'check' have a chess?

16. How do you put a tick on to a Vic or 64 screen in direct mode? Type Shift + 6 in lower-case mode

17. Spot the deliberate mistake and solve the possible INPUT problem in the clock display routine

100 INPUT "TROUSERS": MS

110 INPUT "MINUTES": MS

120 TIME:=MS+MS\*100

130 PRINT

"TIME="LEFT(TIME)2~

MID(TIME,3,1)~"RIGHT(TIME,2)

140 GOTO 100

The INPUTs in lines 100 and 110 should be followed by semi-colons, otherwise line 120 would crash with SYNTAX ERROR unless you use TAB colon outside quotes in T30 which is semicolonless

What is theory is the maximum number of all types of variables that you can have on a Vic or 64? We reckon it's 5,793, as follows.

numeric:

1-2=25

3-2=65

4-2=260

string:

13-2=25

14-2=675

15-2=260

integer:

8%-2=25

18%-2=675

18%-2=260

Same again for arrays. Less three reserved variables (TI, ST, TI\$) gives the 5,793

18. Which new home computer would you expect Captain Kirk to be speaking to in Star Trek II?

The Class (or Plus, or Enterprise Computers) Enterprise

19. Are there any real operating systems in the lot of names below? If no, which one(s) are there?

a) TURBO

b) DOMUS 800

c) CP/M-140

d) UCSD p-system

e) Zardis

TURBO is the only real one here - though the rem all have names similar to those of real operating systems.

# COMMODORE USER: CHART UPDATE

## CBM 64 TOP 20

1	(-) Beach Head	US Gold
2	(1) Space Pilot	Anirog
3	(2) Manic Miner	Soft Projects
4	(7) Forbidden Forest	Cosmi
5	(3) Hunchback	Ocean
6	(8) International Soccer	Commodore
7	(9) Revenge of MCs	Llamasoft
8	(-) Blagger	Alligata
9	(-) Solo Flight	Microprose
10	(-) Flight Path 737	Anirog
11	(-) BMX Racers	Mastertronic
12	(14) Speed Duel	DKTronics
13	(4) Scuba Dive	Martech Durell
14	(6) Pilot 64	Abbex
15	(-) Sheep in Space	Llamasoft
16	(-) Aquanaut	Interceptor
17	(11) Aztec Challenge	Cosmi
18	(-) Harrier Attack	Martech Durell
19	(-) Pyramid 64	Fantasy
20	(-) Superpipeline	Taskset

### TOP 3 MANUFACTURERS:

**LAMASOFT**  
**ANIROG**  
**ALLIGATA**

An independent chart to best-selling Vic-20 games, compiled by R.A.M.C. for Commodore User, representing retail sales in independent specialist outlets referenced against distributive sources. Sales for May period.

### Good and bad points

We also asked competitors to list the five best and worst aspects of the Vic and 64. We broadly agreed with Peter's list:

The five best points of the Vic-20.

1. Keyboard
2. Price
3. Good range of video games
4. Game-defined and multi-colour graphics

5. General expandability - ie. printers, tape drives, tape decks, tape recorders etc can be used, plus memory cartridges available

The five worst points of the Vic-20.

1. Small memory
2. Small screen width

3. The Spaghetti! sometimes the external power supply and RF modulator and their associated wires are a real pain in the neck - especially if you move the machine around a bit

4. Poor filing commands - not really versatile, INPUT# and so on

5. Basic is slow as provided on cassette

The five best points of the CBM 64.

1. Excellent graphics, including sprites
2. Very good sound (built-in synthesiser)
3. Large memory

4. Serious business applications (like church parishes) - word processing, spreadsheets etc

5. Available software is excellent - new languages available and so on.

On the five worst points of the CBM 64.

1. Poor basic (fairly slow as well)
2. No hi resolution graphics directly available

3. Interfacing with non-Commodore peripherals is difficult, hence you are limited to CBM printers etc, unless you buy an interface

4. Sound although good, is difficult to use

5. Prohibitive price of add-ons

### The games

Part Two asked competitors to outline some games. We'll be using Peter's as the basis for our next competition ...

Well done, Peter Bartley!



# COMMODORE USER: CHART UPDATE

## VIC 20 TOP 20

1	(-) Flight Path 737	Anirog
2	(10) Chariot Race	Microantics
3	(8) Flight 015	Ferranti
4	(1) Crazy Kong	Interceptor
5	(5) Snooker	Visions
6	(-) Computer War	Creative Sparks
7	(-) Bongo	Anirog
8	(6) Sub Commander	Creative Sparks
9	(2) Jet Pac	Ultimate
10	(12) M.L.B.A.T.E.T	Llamasoft
11	(3) Wiz and Princess	Melbourne
12	(4) Hell Gate	Llamasoft
13	(-) Tank Commander	Creative Sparks
14	(15) Matrix	Llamasoft
15	(11) Emmet Attack	Commodore
16	(-) Dracula	Anirog
17	(-) Duck Shoot	Mastertronic
18	(20) Mine Madness	Creative Sparks
19	(7) Sargon II Chess	Commodore
20	(20) Tower of Evil	Creative Sparks

### TOP 3 MANUFACTURERS:

**CREATIVE SPARKS - (THORN EMI)**  
**ANIROG**  
**LAMASOFT**

An independent chart to best selling Vic-20 games, compiled by R.A.M.C. for Commodore User, representing retail sales in independent specialist outlets referenced against distributive sources. Sales for May period.

*Review*

# Commodore's Magic Desk previewed

by Albert van Aardt

There are a couple of much promoted novelties in the world of business microcomputers right now. One is the use of pictures on the screen to which you point with the cursor rather than typing a command, you indicate the symbol that corresponds to what you want to do. The other is the idea of a single program containing multiple functions, typically word processing, records handling and spreadsheet work, the results from one can be used instantly in another.

Too complex for the modest Commodore 64? Commodore didn't think so. Over in the States Commodore has been making quite a noise about Magic Desk cartridges, saying things like 'it's for the person with no programming skills'.

Well, at least they were right on that score.

If that introduction sounds a bit bitter to you, it is because I'm rather disappointed in this product. But let me first tell you what it's all about.

Magic Desk is a cartridge which plugs into a Commodore 64 with disk drive. The idea is excellent provide the user with pictures, rather than words, to let him or her use the program. When you switch on you're presented with a screen showing a desk with a telephone, calculator, typewriter, a card-type box and something that looks like a pad of dollar notes. Underneath the desk is a wastepaper basket next to it a filing cabinet, on top of which there is an electronic clock. In the background there is a door. A hand, with a pointing finger hovers in the air.

Help screens are provided to tell you what to do on the functions available. So, in theory at least, you can get along merely by using them - no need for a manual or a learning curve.

## The moving hand

So far so good. You are supposed to move the hand with a joystick to the function you want, and select it with the fire button.

If you choose the typewriter you are presented with another hi-res graphics picture, looks like the planer bar on a typewriter with a piece of paper inserted. You can now type a page and correct errors without the use of Tippex. You can also set tabs left and right, and the computer makes a realistic noise just like a real typewriter.

Once you've finished your letter, you can return to the desk using the joystick again. You can now choose any of three drawers in a filing cabinet, each contains ten folders, each folder



has ten pages in which you can file your letter. The folders and the pages can be given names so that you could reference them later and extract your document.

## and moves on

Commodore calls this 'type and file' and that is exactly all you can do. No word processing, no search-and-replace, no calculations, no cross referencing. I don't know whether

Commodore intended bringing out these functions on disk, but right now Magic Desk cannot do any of them.

And even within its limited scope there are a number of irritating snags:

- There is no warning given when you reach the end of a page. This means that you can happily overtype your last line until you notice what's happening. If a slow typer like me finds this very frustrating, imagine the language of some of the touch typists!

• Very few documents are only one page long - not even my

letters to the taxman. So why is the user limited to one page at a time?

- While you're typing in the middle of the page you have no idea of how far you are from the top or bottom. This could be very important if you want to produce a nicely formatted letter or report.
- After some trial and error I discovered that you could use the keyboard to position the hand:

Fire    CTRL J  
Right = CTRL G  
Left = CTRL D  
Down = CTRL A  
Up = CTRL CRSR RIGHT

So why not say so in the three-page write-up?

- Magic Desk uses a relative file organization on disk. Now I have seen some real magic being done with relative files but I'm sad to say none of the powerful capabilities available are used in Magic Desk. Even more disappointing, you cannot use this data that you've typed in other programs, like, for example, a word processor.

• The program does a disk access every time you go to the filing cabinet. Obviously the authors of the program didn't bother reading in the directory into memory on the first access - wasting your time at the end of every page.

Is it any better than a typewriter? Marginally so, you can correct mistakes on the screen, and you can file 300 pages on one floppy disk. For an absolute novice I would say Magic Desk is an OK way to get into computers. It will definitely break the ice. And for children I think it is a very good program, because it combines the idea of playing with some more serious aspects of file handling.

A very rough calculation shows that this program with one page typed should use about 15K of memory. Basic gives you 16K at least. So why oh why, didn't they use all that power in the Commodore 64?

## In conclusion

As I said, the concept of a pictorial driver is quite good although the functions available are very primitive. If the other functions like a calculator, telephone directory financial journal and the like (and just what lies beyond that door on the menu?) were available, it would be a good package for a small business. If more thought had gone into the application and into the graphics, then it could have been a great package.

Right now it is not up to scratch and some other software I've seen (like EasyScript) beats it hands down.

Will I buy it? No. Should you buy it? Only if you bought a Commodore 64 and don't know why, but want to do something with it.



## **Teach-in**

David Corlett and Dr. Tim Sturz are both highly qualified academics who are reflected in the very learned approach that you get in their Teach Yourself Computer Programming WITH the Macintosh book.

Time: 10 hours. Distance: 60 miles. Speed: 60 mph. Fuel cost: \$2.50/gal. Cost of car rental: \$100/day. Total cost: \$1,000.00. (Note: This is a rough estimate based on a typical sedan at the minimum price level. Actual costs will vary depending on model and type of car, as well as the cost of fuel and other expenses.)

I enjoyed it very much. I'm a teacher at Kennesaw State which serves Atlanta and Gwinnett. These days, I don't have time to play, so I'm not competing, and I hope I never will. I do like to teach and I like to play golf. I've had some other great players, too. The last time I played with Tiger Woods, he hit a hole-in-one on the 18th hole.

The mean number of children per family was 2.6, with the range of 0-10. Median age was 36 years and ranged from 18 to 59. Median household income was \$25,000-\$34,999, and the median annual household income for all U.S. households is \$46,326 (U.S. Census Bureau, 2000).

Well informed...*University* readers may have made up their minds about the new year's "hot" book—*It's a Mad, Mad, Mad, Mad World*. And you can't blame them. The new novel by Norman Mailer is a blockbuster, another major historical contribution to the body of American literature. To read more about it, and about the author, turn to the "Mailer" section of this week's *University*, the most important news magazine. Then go back and read the rest of the book reviews. There's a sensible balance between the literary and the non-literary sections of this week's *University*.

The first stage of the process involved identifying the most promising potential oil shale resources within the influence area. In effect, it became the resource frame. And because we used detailed settings that allow the many different geological processes of the oil shale, we applied a set of oil shale baseline flows in those environments to predict what would happen to them. The outcome is an integrated model that can be used to predict the effects of any scenario.

To get the most out of this book you must work at it. You will encounter difficulties and problems and the result will be a better understanding of anticipated precipitation techniques and a more mechanical approach to problem solving. At \$27.00 this 84-page book with its 100 pages of good quality paper and print is reasonably priced.

# Teach Yourself Computer Programming with the Commodore 64



The Book

The Author  
The Publisher  
The Price  
The Reviewer:  
The Conclusion:

## Teach Yourself Computer Programming with the Commodore 64

Commissioner of  
Lionel Carter and Era Husan  
Hodder & Stoughton  
£2.75  
Ken Ryder  
Excellent value

BOOK

L  
O  
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K

**COMMODORE 64**  
**DRAGON 32**

Our Hapless Hero's  
Latest  
Adventure

# Cuthbert in Space



Actual pictures of Commodore 64 Screen Display

The Professor of TIME has kidnapped his son Cuthbert to be an odd mixture of scientist against the Microdeals Doctor System. Cuthbert wants his spacesuit back so he can get out there and invent his greatest space craft. From the Microdeals he has had a whole armful of the Doctor Material. Please, help him to get his spacesuit back so he can invent the best microdeals. Microdeals are the best microdeals in the world. Microdeals are the best microdeals in the world.

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# BOOK LOOK

## The Beginner's Guide to Computers and Computing



The Book:

*The Beginner's Guide to Computers and Computing*

The Author:

Peter Gerrard

The Publisher:

Duckworth

The Price:

£19.95

The Reviewer:

Clive Sulmer

The Conclusion:

Friendly and informative

The three rings. That's it - you can almost hear them in the title - and that's just what you get with *100% The Beginner's Guide to Computers and Computing*. It's a friendly, informative book that's aimed at the beginner, and it succeeds in doing just that.

There are chapters on how to use a computer, how to connect to the Internet, how to use e-mail, how to use word processors and spreadsheets, how to use graphics, how to use databases and how to use multimedia.

There is also a section on how to buy a computer, how to maintain it and how to troubleshoot it. There is even a chapter on how to use a computer to help you with your hobbies and interests.

Overall, this is a very good book for anyone who is new to computing. It is well written, clearly explained and provides a wealth of information.

Verdict: Recommended. You can buy *100% The Beginner's Guide to Computers and Computing* at £19.95 in independent bookshops nationwide.

## Volcanic Games for your Vic-20

**VOLCANIC GAMES  
FOR YOUR  
VIC 20**

HAL RENKO / SAM EDWARDS

The Book:

*Volcanic Games for your Vic 20*

The Author:

Hal Renko and Sam Edwards

The Publisher:

Addison Wesley

The Price:

£3.99

The Reviewer:

Clive Sulmer

The Conclusion:

Good value

*The Beginner's Guide to Computers and Computing* has been written by a VC20 enthusiast for the beginner user and is, in effect, a quick introduction.

The book is aimed at the beginner, and it is the first of the series. It covers topics such as how to use a computer, how to use word processors and how to use spreadsheets.

It also includes sections on disk and memory, how to use the Internet, how to use e-mail, how to use word processors and how to use spreadsheets.

It is a very good book for anyone who is new to computing. It is well written, clearly explained and provides a wealth of information.



LETTERS

# PIRATES!

## The pirates return ...

It is of paramount importance to everyone within the software industry, be it on the development or advertising side, to stamp out software piracy before it completely oversteps the mark and there is no software industry.

One way magazines in particular can be of assistance would be to stop the same group lists in the magazine now before it is too late.

Microdeal Ltd, 41 Truro Road, St Austell, Cornwall PL25 8JE.

This circular comes with a copy of a letter from one of Microdeal's customers who had found an Irish 'club' selling what were obviously bootlegged copies of its games. Now that kind of thing we have no difficulty at all to consider illegal, as unethical and - in the long run - counterproductive.

(Microdeal's games aren't at all bad, but if Microdeal wasn't afford to do them they're denied to the rest of us).

As for listing clubs, one of our functions is to provide information. Hopefully it's good information, but we can't check the credibility of every club we list. We certainly would not condone to publicise any obvious rip-offs - whether it's the legit software suppliers or the pirates.

## ... Walking the yard arm ...

Your reaction to our letter regarding piracy is symptomatic of the ostrich-like mentality that afflicts our industry. You have totally failed to grasp the nature and magnitude of the problem.

Our market research reveals the games-playing school children typically own in excess of 100 games. If you would like to see our market research forms actually filled in by these people it might bring the facts of life home to you.

The criminals responsible for pop and video piracy have turned their attention to game software. The counterfeits they produce are indistinguishable from the real thing and flood the market almost as soon as a new game is released. We can show you examples of counterfeiters and the techniques required to identify them.

The result of home and school and computer club piracy allied to illegal counterfeiting is that sales of new products dry up within a week of launch. This means soft-

**The great debate on the high seas of the software industry rages on. The good ship Commodore User repels a boarding party of irate software houses and acquires herself nobly. Now read on ...**

ware houses are not getting the money they need to produce new products; your readers suffer.

Already the computer magazines are getting thinner because the software houses can no longer afford to advertise as much. Soon there will be an avalanche of software houses going out of business. After the sort-out, there will be less software houses selling far more expensive products (Psychapse will be over £30 and totally copy-proof) and there will be less magaines

I hope you have the courage to publish this letter.

R.C. Everiss, Operations Director, Imagine Software Limited, Tithesham House, 1-5 Tithesham Street, Liverpool, Merseyside L2 2NP.

To restate our position on piracy of programs, we're against it. We're not against taking back-up copies, but then who needs a back-up copy of a game? In other words, the large-scale distribution of ripped-off products is the cause for which we'll join Bruce Everiss on the barricades.

But we're not to be convinced about the flood of software houses breaching down the doors of the Bankruptcy Court. All the failures we know of in the last 12 months have been due to other causes — business and management factors, like not having enough cash behind them and knowing damn-all about marketing or more reprehensible concerns, like the supplier ripping us off with crummy products, or banking the cheques and then disappearing.

The original letter to which Bruce refers invites the computer press to start a concerted campaign against copying. Specifically it demands we ask for laws creating "harsher penalties", we expose the copying clubs, we "filter out" ads for the pirates' products.

OK, then. We already do try to kill ads for copiers before they appear; but since we don't get to see most of our ads until a few hours before

our deadline, we can't guarantee to do that. Anyhow, it would be a bit arbitrary: we like the idea of a 1541 backup program to take security copies, we dislike the idea of a disk copier to run a small-order bootlegging business.

We do our best. We also refine ads featuring naked people with big tits, ads for snuff movies, and ads for political parties.

And we'll try to "expose" the copying clubs if we get to hear about them. Again, though, it's hard to spot the diff ones amid all those house file clubs.

As for changes in the law, I'm not sure that the guillotine is the right answer for a group of 15 year-olds who all want the Complete Jeff Minter Collection. There are laws available right now, and damn few tape-copying prosecutions have been done under them. Still if Mr Everiss wants us to campaign, we don't mind chipping in:

Dear Mr Brittan, Can we have a law to protect software houses against tape copying please? Thank you.

We're not being facetious about this. We do understand the *newspaper's* point of view: but quite apart from their willingness to be the first place to enter a business when they knew that tape copying would be a fact of life, we dislike the idea of using a JCB to stamp on them. Mr E is hereby invited to demonstrate publicly the sanguinity of the problem.

Our other objection is to blackmail, which brings us to . . .

## The Anti-Press Release

In association with a number of similar minded software houses, PSS has taken a positive step in the prevention of home copying. The action to be taken is the threatened withdrawal of all advertising support from any journal carrying advertisements for tape or disc copiers.

The software houses concerned are PSS, CRL, Anzog, Silversoft, In-

terceptor, Macrodeal and Visions - have all agreed to adopt a similar approach on the subject as a show of solidarity in the prevention of piracy.

Gary Maya of PSS said, "There shouldn't be the need for such devices. We offer a replacement tape or disc should either fail to load, and I would have thought that this was sufficient."

It is hoped that many other software houses will support their colleagues in this matter, as this is one of the first major steps to be taken in the obliteration of piracy.

Gary Maya, PSS, 452 Stoney Stanton Road, Coventry CV6 5DG.

Now, this was a press release or a distinctly unwell threat, depending on how you look at it. It repeats the more delicately-worded Guild of Software Houses letter in our June issue (can't these people get together on their media-bashing?) wherein a survey of journals was promised to see who was testing the line on refusing copier advertisements.

We do refuse such ads, when we can spot them: if they slip by, they won't be run again if we can help it.

But we're not happy to be tarred with whatever broad brush the software houses are wielding. The computer press isn't one homogeneous organisation with common standards and shared policies any more than the software houses are. This kind of generalised warning to *The Computer Press* file is the face of reality.

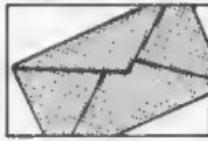
So let's hear some specific cases, can we? And let's have a bit more understanding of how journalists, editors and advertising sales people actually work.



Letters

# Write away

This is your page: normally we write for you, but here we listen. Feel free to let us know what you think - about the magazine, about Commodore, about suppliers, about life, art, the meaning of existence or whatever. We don't print everything we receive, of course, but anything that might be of specific relevance or general interest will make it to these pages.



## Clubland Update

Maybe you would be kind enough to mention CLUB64, which could be best described as a Commodore 64 software user group, in a future edition of your publication.

As we have not yet fully decided the range of services that we should offer to our members we are seeking constructive suggestions. It should be mentioned that we have a particular interest in hearing from users who cannot attend club meetings because they are living in remote parts or because they are disabled or even because they do not have the time.

We have already established a library of high-quality public domain programs most of which have been checked and debugged. At present ten disks are available and every one of them includes between ten and fifteen programs which may be copied and distributed to friends, members of user groups, schools etc. We hope to add at least two disks per month and maybe, if we get enough suitable material, issue a regular news letter on disk.

All 64 users with disk drives are invited to make use of our library. For anyone who only wishes to use the library there will be no membership fee but there will be a charge of £5.00 per disk. This includes the cost of packing and postage to any part of the British Isles (postage to other parts of the world will be extra) and the overheads involved in obtaining and copying programs.

As we are a non profit making group we do not, at present, have the manpower or resources to enable us to make programs available on tape but if the demand is great enough for such a service we will try to find a way.

We are interested in obtaining news, information, product details, programs or any information suitable for inclusion on our proposed disk newsletter - would it be possible for software producers to supply short samples or trailers for inclusion on our disks?

Brendan Corcoran, 85 Upper Deanscourt Road, Dublin 9, Ireland.

## ... And new date

I am writing to you to inform your readers of a new club which I have started. The Club does not intend to become commercialised, but has been set up to give more to the minority group of 32K Vic-20 owners.

The idea of the Club is that anybody who wishes to join can submit and also ask for programs, information etc from other members, just paying the postage required. There will also be a newsletter regularly which we shall just charge printing and postage costs for anybody in the Club who may wish to purchase a copy.

May I ask anybody interested in joining to send a SAE to the address below.

M. Valentine, The 32K Vic 20 User's Club, 101A Underdale Road, Moakmoor, Shrewsbury, Shropshire SY2 5EF

## Hands across the ocean

I would first like to congratulate you on a great magazine I have been subscribing from the Christmas 1983 issue of Vic Computing.

One small criticism though I don't like the way you say "suitable for the kids" when you get an unsophisticated game. That's ridiculous. The only people who would like those games are people who have never seen anything of the sort and are absolutely fascinated by them.

In Barbados we use American computers, TVs etc I recently acquired a 64 after previously owning

a Vic-20, and I have a Zenith television which produces screen flutter which I controlled (on the Vic 20) using POKE 36864,133. But I haven't figured out how to perform the same operation on the 64 HELP!

I have Simon's BASIC which I bought for \$36.00 US. I have only found one bug: the COPY command produces an array of weird and wonderful lines and characters which if they were sent to the Pentagon they would spend a year decoding them. Apart from that it is an excellent program.

I typed in Lightspeed and found it quite a good game except for one thing. A player can stop the movement of the other by holding down a key. This can be remedied by using 2 joysticks or 1 joystick and keyboard and deleting the GOTO160s in the check keyboard routine though.

Andre Ghika, 3 Adams Castle, Werthing P.O., BARBADOS.

## Vicsoft hard

In previous issues of Commodore User you have asked for readers comments on what we think of Commodore and its back-up service. Try this for size, the ultimate adjective I leave to you and your readers.

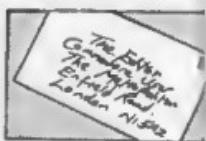
In May 1983 I bought a Commodore 64 and immediately sent away my registration form. By return of post I received confirmation of my registration and a Vicsoft magazine.

On 15 September 1983 I sent off my first order for Vicsoft Membership Spin Graphics Editor Know Your Own Personality and Money Manager - total cost including VAT £30.97.

I received by return of post my membership card plastic computer cover, plastic disc box and an invoice stating that the three tapes were to follow.

At the end of October I received the Know Your Own Personality tape but no explanation regarding the other two tapes.

On 30 November 1983, I received a second copy of Know Your Own Personality, with no ex-



planation why or the whereabouts of the other two tapes.

At this stage I rang the Vicsoft office (when I could finally get through) and spoke to a Miss Heather Jones. I explained the situation at date and asked what procedure I ought to adopt with the surplus tape. She advised me to send the unwanted tape back and they would refund the cost of postage. With regard to the two tapes outstanding, she would investigate and ring me back.

I sent the unwanted tape back immediately — recorded delivery at a cost of £1.30. I also sent a letter at the same time, detailing the events to date and asking for an explanation regarding the two outstanding tapes. Both my telephone call and my letter were ignored, I heard nothing and received no reply.

On 15 December 1983 I decided to speak to the Manager in person — a Mrs Shaw. She knew nothing about my case personally, but she did know that we were having problems with the Money Manager and this would be about 2 to 3 weeks. Regarding the other tape and in hand, she would investigate and ring me back.

By mid January 1984 I had heard nothing and received nothing. I rang Vicsoft and asked to speak to Mrs Shaw. She either could not or would not speak to me but passed me over to a Miss Jane Lunn. She knew nothing of my problem, so she had to start from the beginning and explained the situation to date. She said they were having problems with the Money Manager and this would be about 2 to 3 weeks. Regarding the other outstanding tape and the refund, she would look into this and ring me back.

She did indeed ring back to advise that they were not out of stock

# Letters

the Sprite/Graphics Editor but they couldn't find one. They would however make every effort to find one and send it on.

End of January 1984 I received Spring Catalogue from Vicsoft from which I noted they were still advertising the Money Manager and the Sprite/Graphics Editor on a 28 day delivery basis.

At the end of February I had heard nothing and received nothing. I contacted the Consumer Protection Department of the South Yorkshire County Council. They advised me to write to Vicsoft giving all the relevant details and specify that if a reply was not received by a specified date, a summons would be issued through the Small Claims Procedure at the County Court.

My letter was dated 25 February 1984. I asked for my tapes and postal refund, my money back or an explanation. My letter was completely ignored. I then asked the Consumer Protection Department to try to make contact with them, in the hope that they might succeed where I had failed. The Department wrote to Mrs Shaw on 19 March 1984. Three weeks later they had had no reply from Commodore.

Over the next five weeks much time and effort, not to mention the cost of the telephone calls, were made by the Consumer Protection Department to get some response from Commodore. Finally on 10 May 1984 I received a cardboard box, handle of which was -

(a) Money Manager tape  
(b) 15pines/Graphcis Editor tape  
(c) One Free Note  
(d) 15 Pence Pieces stuck to a piece of cardboard with sellotape.

Nothing else included in the package, no explanation or apology for the delay, no expression of concern at the inconvenience caused, a case it would seem of "This is what you ordered, here it is, only 8 months late, now shut up".

It is worth pointing out that Vicsoft is a big operation, statistically a small percentage of foul-ups are to be expected, and the bigger the sale the more people will fall into the Suffering Minority category.

That's the kindly view, anyhow. No comfort at all for the sufferers, I'm afraid. We're preparing a place on what kind of legal redress you have against non-delivery or non-operation of any product, holding it particularly on mail-order houses. But they come and go like the tooth fairy: like the disappearance of Kink a few weeks ago left many people stranded and their cheques crushed without

others of the hazards and joys of mail order.

In November I ordered a selection of software from Vicsoft, a Commodore subsidiary, believing any order to be faulty sale. In January, after advice from Vicsoft of delays in delivery of all the items on order, the first began to arrive. One item failed to arrive by mid February, and one was defective. A second copy failed to load. By mid March I had at last after many letters managed to get a refund for the non-delivered item. However Vicsoft have ignored all letters relating to the defective program.

In marked contrast, on Sunday I telephoned an order for Flight Path 737 for my Vic-20 to Aurora. Five days later (and one a bank holiday) this highly recommended product arrived. Congratulations and well done, Aurora, Vicsoft could learn from you.

Finally I must praise and criticise *Commodore User*. Today I received my copy of your excellent magazine but as a subscriber why have I had to look longingly at May's issue on my newsagents shelf for the past eight days while I wait? Surely your first copies should be delivered to subscribers and not rushed to the shops? If this continues I shall obviously be seriously considering my subscription renewal with a view to purchasing your or your competitors' volumes from my newsagents.

Keep up the good work; but please, post first and keep your regulars.

K Moore, 28 Rachael Close, Fair Oak, Eastleigh, Hants SO5 7JL.

We've had a number of complaints about Vicsoft, and since Commodore hasn't chosen to respond to our letters requesting a comment it's about time some of these complaints were aired.

It is worth pointing out that Vicsoft is a big operation, statistically a small percentage of foul-ups are to be expected, and the bigger the sale the more people will fall into the Suffering Minority category.

That's the kindly view, anyhow. No comfort at all for the sufferers, I'm afraid. We're preparing a place on what kind of legal redress you have against non-delivery or non-operation of any product, holding it particularly on mail-order houses. But they come and go like the tooth fairy: like the disappearance of Kink a few weeks ago left many people stranded and their cheques crushed without

products having been despatched...

As for the discrepancy in deliveries between subscription mailings and the newsstands, I'm afraid that's an uncomfortable fact of the way magazines like *Amiga*, *Ten* days before publication we HAVE to give copies of the magazine to the company who supplies the middlemen who supply the retailers: in most cases that means the distribution takes nine or ten whole days. But sometimes, in some areas, some of those middlemen can get the copies to the newsagents a lot faster.

We're looking into this and will be trying to ensure a better service for subscribers versus newsstand buyers.

## Applause always welcome

I have just purchased my first *Commodore User* magazine and I wish you to know that I am very impressed. I have read it from beginning to end and contrary to some comments from your readers, I find the information and layout above that which I normally find in other magazines. Perhaps they would change their minds if they read the vast amount of rubbish I read in some magazines and books.

Keith Worsley, 4 Windy Grove, Wilsden, Bradford BD15 6LR.

## ArFon angst

I am writing in to warn your readers of a potential danger concerning the ArFon Expansion unit for the Vic-20. The dangerous situation arises when the unit is being used in conjunction with the original Vic transformer in order to give access to the user port. If the original transformer is connected and the ArFon user port is inserted, the 9 volts ac given by the Vic through the user port is applied to the ArFon transformer and the neon light on the ArFon unit will glow.

If the ArFon switch is then made to connect, the transformer is connected and the plug on the end of the ArFon lead becomes live.

The only solution to this seems to be to keep the ArFon switch off, for the reason of the ArFon user would prevent the expansion board from working if anything were done to rectify the problem. The situation is an unfortunate fact for which ArFon are not to blame, but perhaps they should warn people about it in the documentation?

There is also another less important danger of the ArFon unit - if the actual expansion board is connected to the Vic when the system is operating from the Vic trans former only, the fuse in the Vic will blow.

D Gardner, Old Timbers, Francheux, West Tytherley, Wilts SP3 1NU.

There is also another less important danger of the ArFon unit - if the actual expansion board is connected to the Vic when the system is operating from the Vic transmitter only, the fuse in the Vic will blow.

ArFon is no longer with us, sadly, and we don't think the (generally commendable) expansion unit is still on sale. Anyone knew otherwise?

## Out for the Count

Help! Does anyone know how to find (and kill!) Dracula, having already found the coffin, in *The Count*?

Alternatively, I still help anyone who has problems with Adventureland, Mission Impossible (which is possible!) or Voodoo Castle.

Incidentally, like many others, I feel there should be an Adventure section in *Commodore User*, to make this superb magazine into a perfect one!

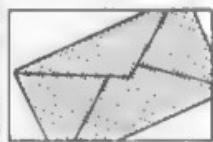
Francis Lee, 45 West Drive, Radsworth, Birmingham B20 3ST.

Adventure page starts in the *Autumn*.

## Bouquet ...

After reading your article on Whetby's business commands cartridge I spoke to Mr David Tindale on the telephone. He told me that there had been a slight mistake in the article, in that his standard product costs only £29.95 and not the £34 quoted.

For £34 I could have the standard chip plus an expansion tape containing the extra commands I required. I placed my order at 4.30pm on Friday evening giving



# Letters

my Access card number.

To my surprise and delight at 8.30am on Saturday morning the package from Whitby was on my doosmap.

Well done, Whitby, for an excellent product and incredible speed of delivery!

R. Francis, 9 Browns Road,  
Rhos-on-Sea, Colwyn Bay,  
Gwynedd, N. Wales LL28 4UR.

## ... copy of a bouquet

To RAM Electronics (Fleet) Ltd.  
100 Fleet Road,  
Hampshire.  
GU13 8PA

I am writing to thank you for service that can only be described as superb. I posted my Vicscript to you on a Friday, enclosing a note with a brief description of the task, and an apology for having taken the unit apart to shorten the lead.

I had hoped that you would be able to repair it fairly quickly, but I had no idea that the following Wednesday I would receive, by recorded delivery, a brand new Vicscript complete with updated instructions. The level of service goes way beyond reasonable expectations and deserves an acknowledgement.

I am sending a copy of this letter to **Commodore User** in the hope that they can let their other readers know that yours is a company that does not lose interest in their customers after their initial purchase.

John Elliott, 98A Fore Street,  
Saltash, Cornwall PL12 6AF.

## Printing by numbers

I have been trying to discover a better method of listing numbers so that the decimal point is always in the same column. The method used hitherto has been to convert numeric and integer variables to string variables and then determine len(\$).

However, I now find that if the log of the number (\$) is divided by log(10), it produces an integer value equal to one less than the number of digits in the integer of (\$).

This appears good for all numbers with a maximum of two decimal places, in the range of 01 to 1M+, and is therefore suitable for all cash listings.

The following program demonstrates the principle, the 'best' being in line 30 which can of course be used in any program.

```
5 REM "PRINTING TO THE SCREEN"
10 PRINT"CLR"
```

```
20 FOR N=1 TO 10: READ X
30 T=INT (LOG(X)/LOG(10))+1:
40 IF T=1 THEN T=0
40 PRINT TAB(18-T);X
50 NEXT
100 DATA 1234,12,34,123,4,8,12,
1234,56
110 DATA 01,123456,76,
1989898,89,1,06,0,3
```

David J Wright, 34 Revenuesas  
Crescent, Brighton BN2 4RA.

## Disk tip

The following information may be of use to our readers, especially those who are contemplating the purchase of a Commodore 1541 disk drive.

According to the manual, the sample programs issued with the drive, the word processing package EASYSCRIPT and all other published material that I have investigated, an already existing file on a disk may be overwritten by a file of the same name by using the save-and-replace command - as in "SAVE 'FRED' 8".

What the aforementioned documentation omits is the information that using this command may destroy other files on the disk by overwriting them with the contents of "FRED".

When challenged with this Commodore replied "There is a problem with the SAVE/RE command. The command seems to overwrite existing records on a disk if the new program is longer than the first. The only way to overcome this problem would be to delete the old file first and then re-save or save the new file under a different name and then erase the old file and rename the new one."

A number of new disk commands were also supplied by Commodore. These commands are listed here as they are not described in the 1541 manual and do slightly simplify the rather tedious save-and-replace sequence described.

**Formatting:**  
OPEN 1,8,15, "NO program name",ID\$:CLOSE1

**Scratch:**  
OPEN 1,8,18, "SO program name":CLOSE1

**Seaside:**  
OPEN 1,8,18, "NO. program name":CLOSE1

**Initialise:**  
OPEN 1,8,15, "IO program name":CLOSE1

**Validate:**  
OPEN 1,8,15, "VO. program name":CLOSE1

Commodore seems unconcerned

both with the inconvenience caused by this procedure and by the fact that this problem has to be discovered by the user - in my case at the cost of several files, resulting in a great deal of wasted time and effort.

There is no promise of an updated drive manual or firmware fix for the problem (Beyer (and disk user) BEWARE!)

D.J. Morgan, 12 Clarendon Close, Broadstone, Dorset BH18 9ER.

## Get the picture?

If you have a rolling or unclear picture the following procedure should help. Turn the Vic upside down and undo the three screws. Now lift off the bottom. Before the two parts will completely separate you should disconnect the plug to the power LED - noting which way round it was - and also disconnect the keyboard connector.

Just behind the two DIN sockets at the back of the computer you should see two plastic tuning ports. By adjusting these you increase the size of the signal to the TV (or decrease it). By adjusting these you should get a stable and clear picture.

If you find that the Vic's video signal interferes with another TV channel, the following adjustment will solve the problem. Peel off the Commodore label on your modulator. You should now see two small pots. If the socket for the RF lead to the TV is taken as being the top of the modulator you should adjust the pot which is nearest to the top. Adjusting this clockwise or anticlockwise will move the Vic's signal away from the broadcast signal.

Also, if you have a lot of background noise or no sound at all try adjusting the other pot on the modulator.

David Sim, 12 Mastrick Land, Aberdeen AB2 5JS

## Singalong

I have read many reviews of Commodore's EasyScript word processor, mostly favourable, but I have yet to see any mention of one of its more unusual features - namely, the ability to provide Music: Much Work. In all honesty I only found this unusual (if you will excuse the pun) faculty by accident; for all I know it could be common knowledge.

If you press F1 to enter the Command Mode, then CTRl and 3 together, you will hear a quite delightful rendition of - of all things -



Land of Hope and Glory. I have yet to figure out why Any rational explanation would be most welcome.

Many thanks for a magazine that manages to maintain a generally high standard. Trust your 'going public' via the newsagents has paid off and that we can look forward to many more good issues to come.

R.C. Medford, 7 Thorpe Grove, Hale, Altrincham, Cheshire WA15 9AW.

## Anything you can do (you can)

To answer Stephen Oliver's question concerning Heroes of Kain do get out of the prison you must give the bag of gold to the Guard. The bag of gold is got by attacking the barrowboy with the blade. From the prison you will find the meal and other objects. There is a word involved in the game, you say "orion" and something happens I haven't reached it yet, but I know that because it's usually listed.

I would like to know where the bottle is and how do I get the shovel from the Pirate?

I'm not too impressed with the game's very limited vocabulary, but it is a challenge.

I enjoy your mag, but couldn't you include more 64 information?

Ian McCloskey, 31 Stapleton Road, Rainhill, Merseyside L33 4PY

## Extra Vic graphics

Have you ever wished that your Vic had more graphics characters available without the need for the complicated process of programming your own?

Well, there are a number of graphics characters in your Vic-10 just waiting for you to find them. The following listing will give you a small sample of what you can do.

```
10 PRINT "(SHIFT CLR)":POKE
36879,93:C=30720
20 A=7680
30 FOR B=0 TO 15
40 POKE A,B:POKE A,C,E:
A=A+94
50 KEXTE
55 PRINT "(14 CRSR DN'S)"
RUN this program and you will see what I mean.
```

The characters that this program produces are not available by direct key entry and yet are very simple to access.

And it doesn't need to be

The number 42 in line 40 is the screen code number for " ", but any other Screen Code number will produce its own character (try 81 or 17 for example).

The Screen Border colour combination in line 10 (POKE 36679) was chosen to make the characters easy to see on my Black & White monitor but it works with any combination.

It is interesting to note that these characters appear only when you use colour codes 8-15 and not with the other colours that are available with direct key entry. It is also fascinating that many of the characters are multi-coloured.

So now you have an immense selection of characters available that you didn't know you had, just by using a few simple programming steps!

Alan Ramsey, 48 Collins Street,  
Narrabeen, 2101 Sydney,  
Australia

## **Multiplication revisited**

I read with great interest your May 1963 article about Multiplan and can see that you are convinced that this is the one (except for the inability of the printer to cope 100 per cent).

Since acquiring a 54 I have added all the extras, disk and printer; and would like to use a spreadsheet to experiment with. But I have held back from purchasing mainly because I am not convinced we receive value for money at \$100 to throw to purchase Visi-Calc or others.

I believe that Cannassodore User should publish hacking for spreadsheets etc to keep our interest in the publication and also derive value from our reading of the many articles that are published. We should be able to share the cost of purchasing Multiplan or a disk at much reduced prices.

What about selling me your Visi-Calc at a much reduced price now that you realize it is outdated?

I would be very interested in

your views as you seem to have your finger on the pulse of what goes on in this rat-race of a marketplace.

R. McCarrie, 41 Knowle  
Bexley, Cleveland, TS2 2JW

Listings for spreadsheets? We'll think about it. VisiCalc for sale? Sorry, we have too many VisiCalc spreadsheets to junk it.

### Reversals

In reply to D Rawnsley of Scunthorpe, who wanted to know how he could generate the S symbol—that is a replacement symbol for the reversed E. Apparently some printers cannot generate the proper reversed E.

R. Wilson, 20 Crawford Villas,  
Up Holland, Lancashire WN6  
3QE.

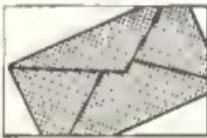
CIRI

I was playing about with my 54 one day when I found if you press the

**CTRL** key you can get these  
**CTRL+Q** = CURSOR DOWN  
**CTRL+E** = CURSOR WHITE  
**CTRL+T** = DELETE CHARACTER  
**CTRL+↑** = CURSOR GREEN  
**CTRL+S** = CURSOR HOME  
**CTRL+←** = CURSOR RIGHT  
**CTRL+→** = CURSOR BLUE  
**CTRL+N** = LOWER CASE CHAR  
ACTERS  
**CTRL+M** = START NEW LINE &  
CURSOR DOWN  
**CTRL+F5** = CURSOR RED

Hope you like them!

Chris Ceka, 30 Walton Avenue,  
Wellingborough, Northants NN8  
1AE



**COMMODORE 64**

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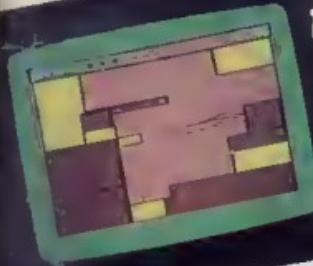
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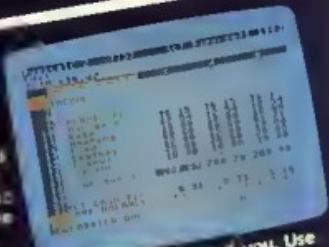
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